

User Manual

HyDraw® CAD⁷⁰⁰

Power-to-Design Circuits



HyDraw[®] CAD⁷⁰⁰

“Power-to-Design” circuits



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General

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1. Introduction

Welcome to VEST HyDraw[®] CAD⁷⁰⁰

Create accurate, error free, professionally drawn hydraulic circuits, parts lists, and quotations quickly and easily.

Drag-and-drop 'smart' symbols into a drawing with point-and-click component selection.

The 'smart' connection lines snap to ports and self-route with jumpers.

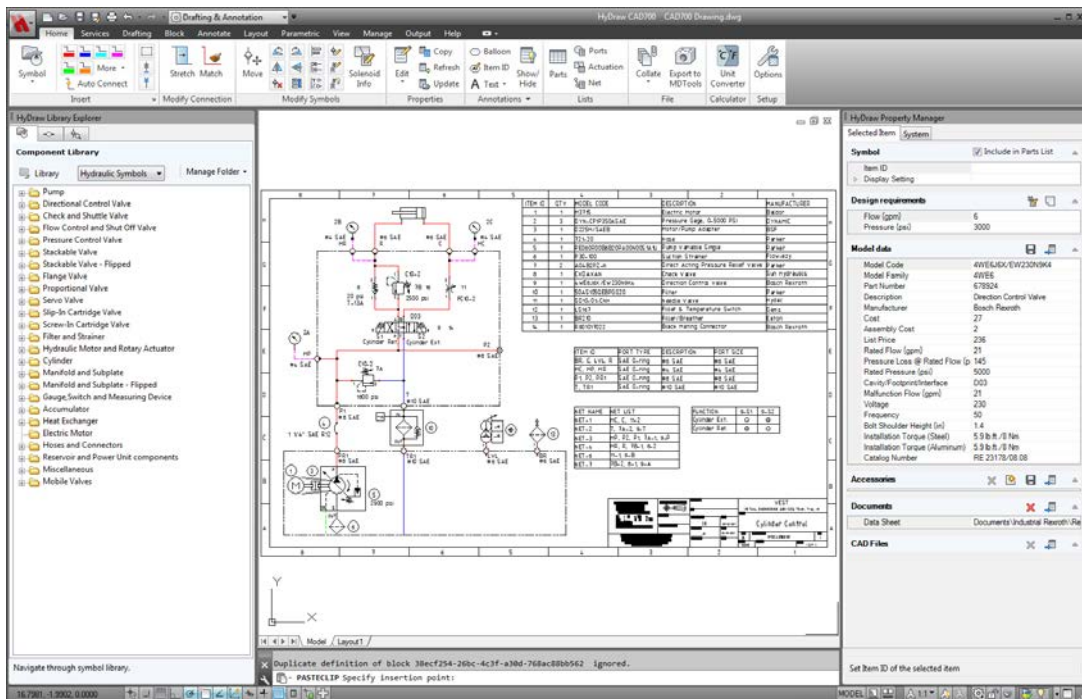
Auto BOM generation ensures accuracy of your Bill of Materials. Easily insert it into the circuit drawing, or export it to Microsoft Excel.

Get started with over 3,000 ISO 1219-1 compliant symbols covering both industrial and mobile hydraulics. 'Remember' your data and rules using HyDraw custom database. Ensure up-to-date pricing of components by linking your ERP data to HyDraw.

Circuit design data can be easily ported to downstream manifold design and CAM systems.

HyDraw can access manufacturer component data from FluidPowerTools.com, a fee-based service from VEST. Also, submit your circuit to QuickManifolds.com for 'instant' manifold design.

Use **HyDraw** and ensure your competitive edge.



HyDraw CAD drawing area with HyDraw CAD Ribbon menu, HyDraw Library Explorer, and HyDraw Property Manager

HyDraw[®] CAD⁷⁰⁰ is easy to use. It works seamlessly with its own ribbon menu. HyDraw symbols are located quickly by navigating logically structured menus. Sets of related symbols are shown together and any required symbol can be inserted into the drawing by drag and drop method or double click on a symbol. You can insert generic symbols or model code specific component symbols into the library. Edit parametric properties of the inserted symbols, when needed.

HyDraw Library

The HyDraw library accommodates a wide range of simple and complex graphical component symbols, and schematic diagrams covering both Industrial and Mobile Hydraulics. Designed in accordance with ISO1219-1:2012, Fluid Power Systems and Components-Graphic Symbols and Circuit Diagrams-Part 1: Graphic Symbols for Conventional Use and Data Processing Applications. A few percentile deviations from ISO standard necessitated keeping in view the large variants of symbols and customer base. The HyDraw library includes both Slip-in and Screw-in Cartridge valves and associated symbols for manifold design circuits.

Smart Symbols

HyDraw symbols are created using primitive shapes, such as lines, polylines, rectangles, squares, circles, circular arcs, ellipsis. They represent components with specified functions or method of operation in the de-energized (at rest) position, or component specific rule that do not have a clearly defined de-energized position. A pool of ISO specified primitive shapes are included in the library to help you design your own generic symbols. HyDraw symbols also include port identification and port numbering, which is essential for manifold design.

ISO guidelines

VEST has adhered to ISO guidelines of Module System (1Module = 2 Millimeter), where the symbol fits into a grid and presents a symmetry. The use of layer properties for assigning ISO defined color to Supply line, Return line, Pilot line, Drain line, Envelope line, and Flow direction exhibits appealing color graphics, which help in instant understanding of the operational aspect of the component. Layer properties are also utilized for naming ports, positions and solenoids. (both US and European pattern)

Search

The new and powerful HyDraw CAD⁷⁰⁰ Search from library command searches general or OEM specific symbols and circuits from www.FluidPowerTools.com, saving time and effort.

Teamwork

HyDraw helps standardization and teamwork. Multiple users within a local area network can share a common HyDraw library. This enhances productivity of the design and engineering team.

Customization

Customize HyDraw to your specific need using the library and data management console. Save custom components data with symbols tagged to a specific model code and relevant OEM catalog data.

More...

Dynamic Directional Control (DC) Valve design and OEM-specific circuit design with Parts List from component properties held in the library make the software very productive.

Net List creation, Manifold Cost estimation and interface to FluidPowerTools.com and QuickManifolds.com enable significant cost and time savings.

Work Smart! Use HyDraw[®] today.

2. Support

1. User Manual

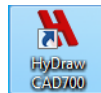
The HyDraw® CAD⁷⁰⁰ User Manual provides comprehensive information on the features, commands, usage, processes, and design methodology of HyDraw.

The user manual can be used as a comprehensive reference to the command set and usage of HyDraw.

The Contents and Index listing guides you to relevant material for study and reference.

The User Manual Adobe Acrobat file includes a left hand column nested menu for easy chapter navigation (Acrobat Reader : View > Navigation Panels > Bookmarks)

****Click the Circuit Diagrams command on the Help ribbon menu to view the user manual in the Adobe Acrobat .pdf format.**



About HyDraw CAD

2. Support

If you have a question about HyDraw CAD⁷⁰⁰ email us at support@VESTusa.com.

Please include the following:

- Version number of the software you use.
To see the version of HyDraw on your machine,
Click **About HyDraw** from the Help ribbon menu.
- Configuration of your machine.
- Exact messages, if any, on the screen.
Send a screen capture, if possible.
- Description of the problem and what you were doing when the problem occurred.
- Description of how you tried to solve the problem.

*****Click the About HyDraw command on the Help ribbon menu to view the About HyDraw message box indicating the software version number.**



About HyDraw message box

Workspace

The screenshot displays the HyDraw CAD700 software interface. The main workspace shows a hydraulic schematic diagram with various components like pumps, valves, and cylinders. The interface includes a top ribbon menu, a left-hand Component Library, and a right-hand HyDraw Property Manager. A blue callout box highlights the following components:

- 3 HyDraw Startup
- 4 HyDraw CAD Ribbon Menu
- 5 HyDraw Library Explorer
- 6 HyDraw Property Manager
- 7 HyDraw Options

The Component Library on the left lists various hydraulic components such as Pumps, Directional Control Valves, Flow Control and Shut Off Valves, Pressure Control Valves, Stackable Valves, Flange Valves, Proportional Valves, Servo Valves, Slip-In Cartridge Valves, Screen-In Cartridge Valves, Filter and Strainer, Hydraulic Motor and Rotary Actuator, Cylinder, Manifold and Subplate, Manifold and Subplate - Flipped, Gauge, Switch and Measuring Device, Accumulator, Heat Exchanger, Electric Motor, Hoses and Connectors, Reservoir and Power Unit components, Miscellaneous, and Mobile Valves.

The HyDraw Property Manager on the right shows the properties of the selected component, including Item ID, QTY, MODEL CODE, and various hydraulic parameters like Rated Flow, Rated Pressure, and Installation Torque.

At the bottom, there is a status bar with the text "Duplicate definition of block 38ecf254-26bc-4c3f-a36d-768ac88a562 ignored." and "PASTECLIP Specify insertion point:".

3. HyDraw Startup

Note: For HyDraw[®] CAD installation, refer Ch68

Open HyDraw CAD⁷⁰⁰

- Double click the HyDraw CAD⁷⁰⁰ desktop shortcut icon.

Alternatively,
Click **Start**

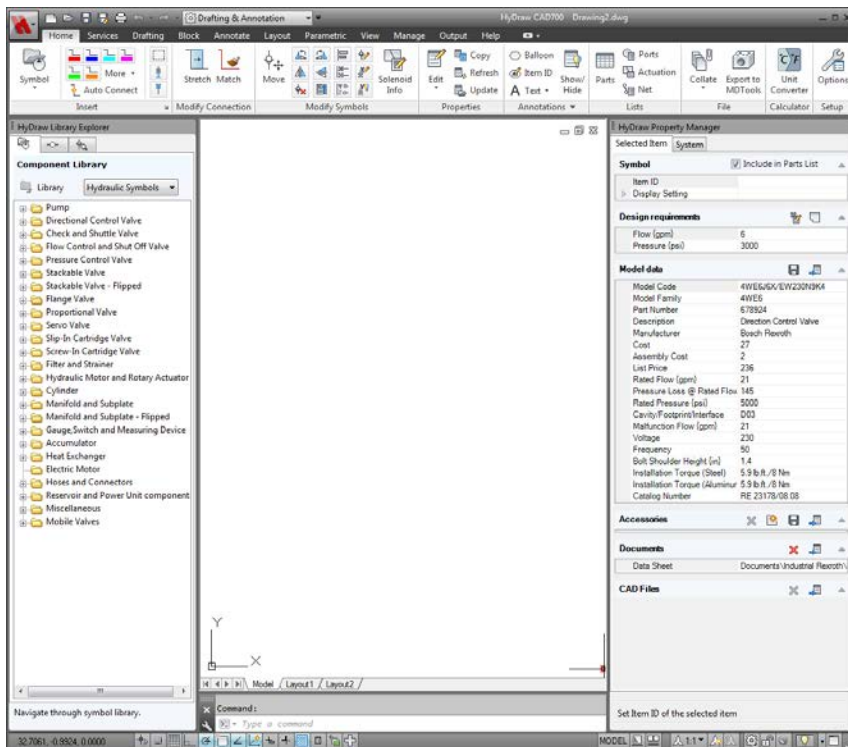
> All Programs

> VEST

> HyDraw CAD⁷⁰⁰

> HyDraw CAD⁷⁰⁰

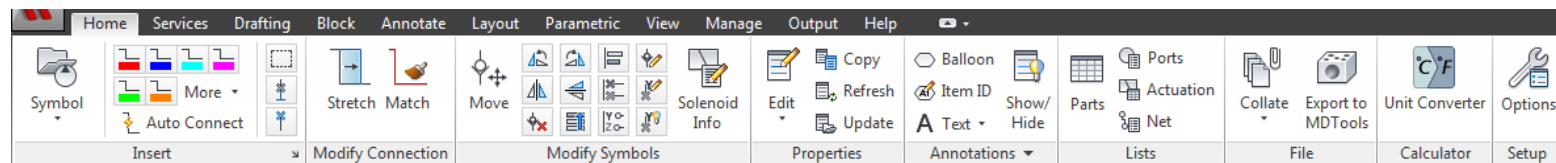
HyDraw CAD opens with the ribbon menu, Library Explorer and Property Manager.



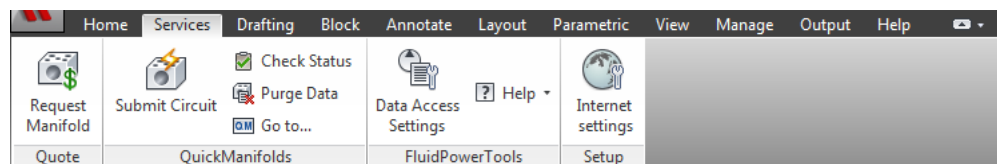
HyDraw CAD opens with Library Explorer and Property Manager

4. HyDraw CAD Ribbon Menu

HyDraw® CAD has a ribbon menu with three tabs, Home, Services, and Help for ready access to the frequently used commands.



HyDraw CAD – Home Ribbon menu



HyDraw CAD – Services Ribbon Menu



HyDraw CAD – Help Ribbon Menu

5. HyDraw Library Explorer

The HyDraw® Library Explorer provides access to symbols, external ports, and components.

Locate them using either the tree view structure or the search option.

The screenshot displays the HyDraw CAD700 software interface. On the left, the **HyDraw Library Explorer** panel is open, showing a tree view of the **Component Library** under **Hydraulic Symbols**. The main workspace shows a hydraulic schematic diagram with various components like pumps, valves, and cylinders, connected by lines representing fluid paths. The schematic includes labels for ports (e.g., #6 SAE, #8 SAE) and components (e.g., CYL-2, FCW-2, CYL-1, CYL-2). On the right, there are two tables: a main component list and a net list.

ITEM ID	QTY	MODEL CODE	DESCRIPTION	MANUFACTURER
1	1	DYN-CP	Dynamic Motor	Baldor
2	3	DYN-CP-P310ASAE	Pressure Gauge, 0-5000 PSI	DYNAPAC
3	1	D25CM/SAEB	Motor/Pump Adapter	BSF
4	1	P21-20	Motor	Parker
5	1	PL016P100B020PADDN00SA10	Pump Variable Single	Parker
6	1	P21-10	Section Strainer	Flow-xyz
7	2	ARA02P2-N	Direct Acting Pressure Relief Valve	Parker
8	1	EXDAXAN	Check Valve	Gsch Hydraulics
9	1	4WE6AX/EW230N0K4	Direction Control Valve	Bosch Rexroth
10	1	51AS1500P0072	Filter	Parker
11	1	50B-13-10H	Needle Valve	Hytec
12	1	5.5N7	Float & Temperature Switch	Gems
13	1	BP220	Filter/Breather	Eaton
14	1	P910B10622	Black Mating Connector	Bosch Rexroth

ITEM ID	PORT TYPE	DESCRIPTION	PORT SIZE
OP, C, LVL, R	SAE O-ring	#6 SAE	#6 SAE
MC, HP, VR	SAE O-ring	#4 SAE	#4 SAE
P1, P2, PR1	SAE O-ring	#8 SAE	#8 SAE
T, TR1	SAE O-ring	#10 SAE	#10 SAE

NET NAME	NET LIST	FUNCTION	9-51	9-52
NET-1	MC, C, 11-2	Cylinder Ext.	○	○
NET-2	T, JA-2, 1-1	Cylinder Ref.	○	○
NET-3	HP, P2, P1, 1A-1, 1-2			
NET-4	MR, R, 7B-1, 8-2			
NET-5	11-1, 1-2			
NET-6	10-2, 8-1, 3-4			


At the bottom right, there is a section for **VEST** (Cylinder Control) with a diagram and a table of parameters.

Symbols and external ports inserted from HyDraw Library Explorer to design schematic

1. Open HyDraw Library Explorer

- Click **From Library Explorer** from the Symbol option on the HyDraw® CAD⁷⁰⁰ ribbon menu.

Alternatively,

- Click Home > Symbol  on the HyDraw ribbon menu.


The HyDraw Library Explorer dockable window displays and docks on the left of the screen.

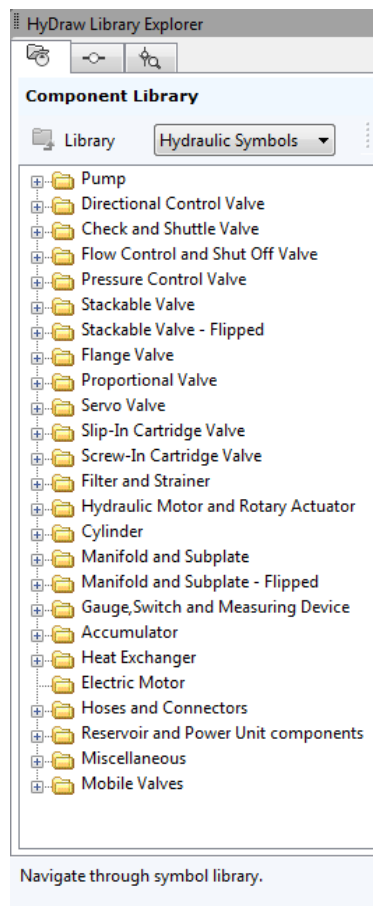
2. Move HyDraw Library Explorer

- Select **HyDraw Library Explorer** using the caption bar and drag or dock it to the desired location.

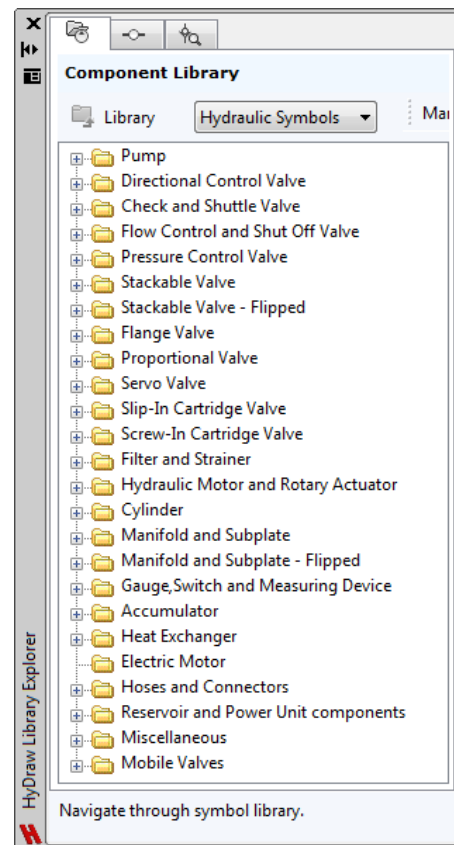
HyDraw stores the information about the docking location of the Library Explorer.

3. Show/Hide HyDraw Library Explorer

- Use the automatic **Show/Hide** feature of the Library Explorer to maximize the drawing space.
- Right click on the window border and uncheck **Allow Docking**.
- Use  icon to Show/Hide the Library Explorer.




HyDraw Library Explorer

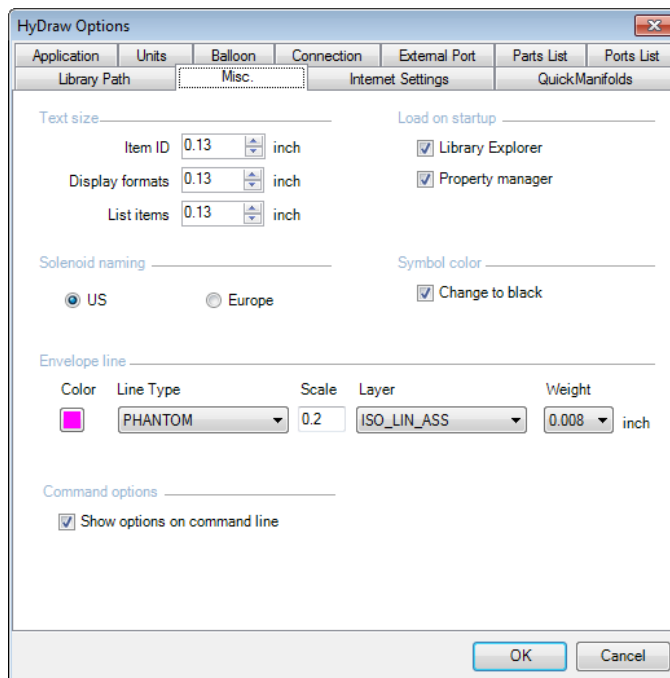


Show/Hide HyDraw Library Explorer

4. Load HyDraw Library Explorer on Startup

- Select Home >  Options from the HyDraw® CAD⁷⁰⁰ ribbon menu.
- Click the **Misc.** tab.
- Select **Library Explorer** from the Load on startup group box.

When subsequently opened, the Library Explorer docks to its previous location.



HyDraw Options

6. HyDraw Property Manager

The HyDraw® Property Manager displays assigned properties of the selected items, such as symbols, ports, connection lines, envelope, and systems.

Search the component or model code with given inputs in the Fetch Model Data.

Configure your own design requirements and save the data into the library.

The screenshot displays the HyDraw CAD700 software interface. The main workspace shows a hydraulic schematic diagram with various components like pumps, valves, and cylinders connected by lines. A table on the right lists the components and their properties. The HyDraw Property Manager panel is open on the right side, showing the selected item's properties.

ITEM ID	QTY	MODEL CODE	DESCRIPTION	MANUFACTURER
1	1	P1175	Electric Motor	Widder
2	3	DYN-CFPP35ASAE	Pressure Gauge, 0-5000 PSI	DYNAMIC
3	1	DZM/SAEB	Motor/Pump Adapter	BSP
4	1	T21-20	Noise	Parker
5	1	P166PR008020PANN051AN	Pump Variable Single	Flow-rite
6	1	P38-80	Section Strainer	Parker
7	2	A048P2-N	Direct Acting Pressure Relief Valve	Parker
8	1	EX04XN	Check Valve	Son hydraulics
9	1	4WEL6X/EM230NKL	Direction Control Valve	Bosch Rexroth
10	1	SA45 R5/GP/GG28	Filter	Parker
11	1	5018-B1-CN4	Needle Valve	Hydrex
12	1	L503	Flow & Temperature Switch	Tenn
13	1	3010B	Filter/Strainer	Fates
14	1	R10101022	Black Fitting Connector	Bosch Rexroth

ITEM ID	PORT TYPE	DESCRIPTION	PORT SIZE
BK, C, LVL, R	SAE O-ring	M6 SAE	M6 SAE
ML, PP, RH	SAE O-ring	M4 SAE	M4 SAE
P1, P2, P3	SAE O-ring	M6 SAE	M6 SAE
T, TR1	SAE O-ring	M10 SAE	M10 SAE

NET NAME	NET LIST	FUNCTION	9-51	9-52
NET-1	ML, C, H-2	Cylinder Ext.	Q	Q
NET-2	T, Jk, Z, T-1	Cylinder Ret.	Q	Q
NET-3	PP, P2, P1, Jk, 1, S-P			
NET-4	MR, R, H-1, B-2			
NET-6	H-1, 9-B			
NET-7	H-2, 8-1, 9-A			

The HyDraw Property Manager panel on the right shows the following sections:

- Selected Item:** System
- Symbol:** ☒ Include in Parts List
- Design requirements:** Flow (gpm): 6, Pressure (psi): 3000
- Model data:** Model Code: 4WEL6X/EM230NKL, Model Family: 4WEL6, Part Number: 678024, Description: Direction Control Valve, Manufacturer: Bosch Rexroth, Cost: 27, Assembly Cost: 2, List Price: 236, Rated Flow (gpm): 21, Pressure Loss @ Rated Flow (psi): 145, Rated Pressure (psi): 5000, Carry/Footprint/Interface: 003, Multistroke Flow (gpm): 21, Voltage: 230, 50, Frequency: 1.4, Base Shoulder Height (in): 5.9 in./8 in, Installation Torque (Steel): 5.9 in./8 in, Installation Torque (Aluminum): 5.9 in./8 in, Catalog Number: RE 23778/08-08
- Accessories:** (Empty list)
- Documents:** Data Sheet, Document/Industrial Research-Vie
- CAD Files:** (Empty list)
- Set Item ID of the selected item:** (Empty field)

Display assigned properties of the selected symbol using the HyDraw Property Manager

1. Open HyDraw Property Manager

Click  on the HyDraw® CAD⁷⁰⁰ ribbon menu

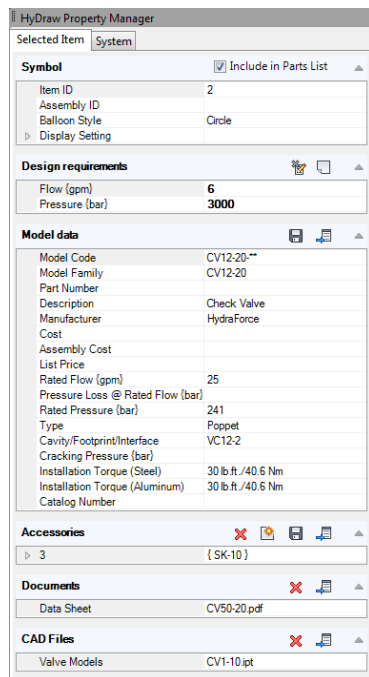
The HyDraw Property Manager dockable window displays and docks on the right side of the screen.

*The HyDraw Property Manager displays two tabs, **Selected Item** and **System***

2. Dock HyDraw Property Manager

To move the Property Manager window, select it using the caption bar, then drag and dock it to the desired location.

HyDraw stores the information about the docking location of the Property Manager.



HyDraw Property Manager

Selected Item System

Symbol ☒ Include in Parts List

Item ID	2
Assembly ID	
Balloon Style	Circle
Display Setting	

Design requirements

Flow (gpm)	6
Pressure (bar)	3000

Model data

Model Code	CV12-20-*
Model Family	CV12-20
Part Number	
Description	Check Valve
Manufacturer	HydraForce
Cost	
Assembly Cost	
List Price	
Rated Flow (gpm)	25
Pressure Loss @ Rated Flow (bar)	
Rated Pressure (bar)	241
Type	Poppet
Cavity/Footprint/Interface	VC12-2
Cracking Pressure (bar)	
Installation Torque (Steel)	30 lb.ft./40.6 Nm
Installation Torque (Aluminum)	30 lb.ft./40.6 Nm
Catalog Number	

Accessories

3 { SK-10 }

Documents

Data Sheet CV50-20.pdf

CAD Files

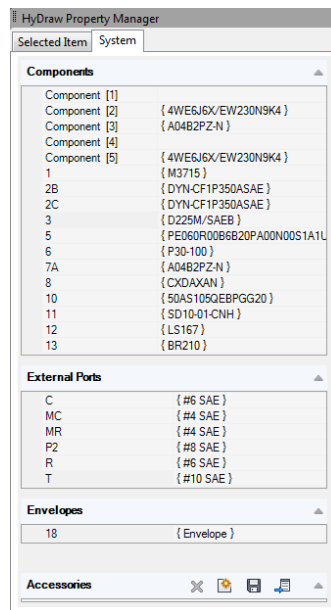
Valve Models CV1-10.ipt

Selected Item tab page

Selected Item tab

The Selected Item tab page displays the properties of the selected component.

The Selected Item tab page remains collapsed, if the item is not selected in the drawing.



HyDraw Property Manager

Selected Item System

Components

Component [1]	
Component [2]	{ 4WE6J6X/EW230N9K4 }
Component [3]	{ A04B2PZ-N }
Component [4]	
Component [5]	{ 4WE6J6X/EW230N9K4 }
1	{ M3715 }
2B	{ DYN-CF1P350ASAE }
2C	{ DYN-CF1P350ASAE }
3	{ D225M/SAEB }
5	{ PE60R00B620PA00N00S1A1U }
6	{ P30-100 }
7A	{ A04B2PZ-N }
8	{ CXDAXAN }
10	{ 50AS105QEBPGG20 }
11	{ SD10-01-CNH }
12	{ LS167 }
13	{ BR210 }

External Ports

C	{ #6 SAE }
MC	{ #4 SAE }
MR	{ #4 SAE }
P2	{ #8 SAE }
R	{ #6 SAE }
T	{ #10 SAE }

Envelopes

18 { Envelope }

Accessories

System tab page

System tab

The System tab page displays properties of the complete circuit. It automatically expands all sections, whenever the schematic is opened in the drawing.

When the item is selected or the schematic is open, the respective menu bar expands and the assigned values display.

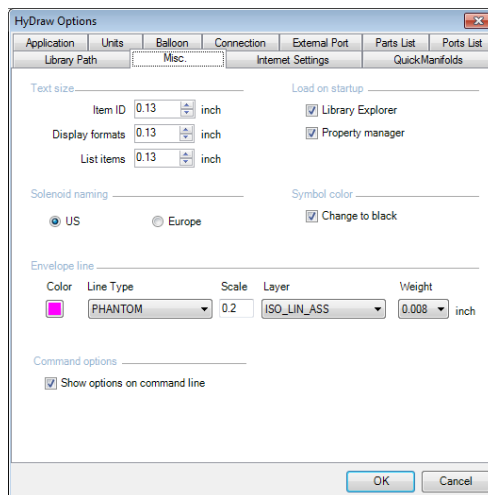
Click  to expand/collapse.

3. Load HyDraw Property Manager on Startup



1. Select Home > Options in the HyDraw® CAD⁷⁰⁰ ribbon menu.
2. Click the **Misc.** tab.
3. Select the **Property manager** checkbox from the Load on startup section.

Subsequently, the Property Manager opens and docks at its previous location.



HyDraw Options: Misc

7. HyDraw Options

Customize HyDraw settings, such as

Application, Units, Balloon, Connection, External Port, Parts List, Ports List, Library Path, Misc., Internet settings, and QuickManifolds*.

1. Application

The Application option enables you to select one of the three applications Hydraulic, Pneumatic, and Electrical.

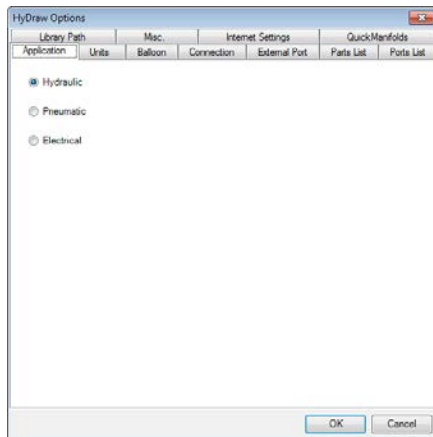
1. Click the **Application** tab.

The Application tab page displays.

2. Select the required application: Hydraulic, Pneumatic, or Electrical.

The application is selected in the Search From Library tab page in the HyDraw® Library Explorer dockable window.

3. Click **OK**.



Application tab page

2. Units

The Units option enables you to select the unit for the selected application.

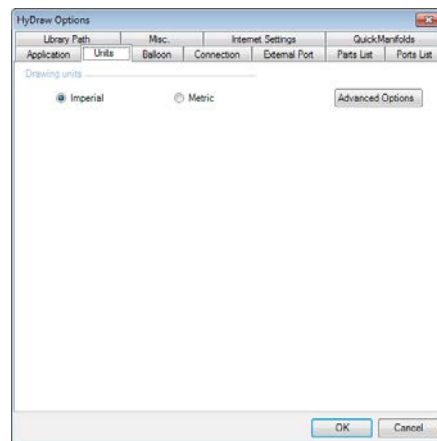
1. Click the **Units** tab.

The Units tab page displays.

2. Select the required drawing units (Imperial or Metric).

CAUTION!

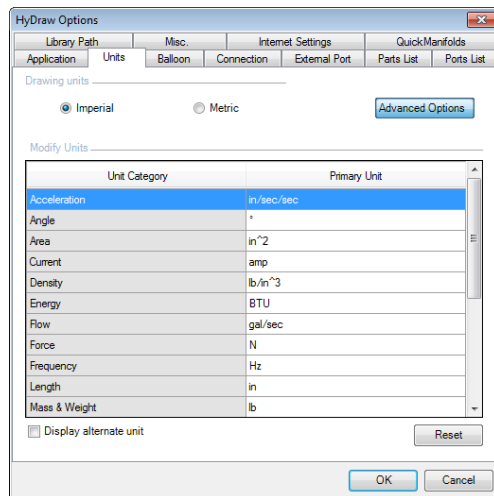
Units should not be changed after symbol insertion.



Units tab page

3. Click **Advanced Options**.

Modify units grid displays.

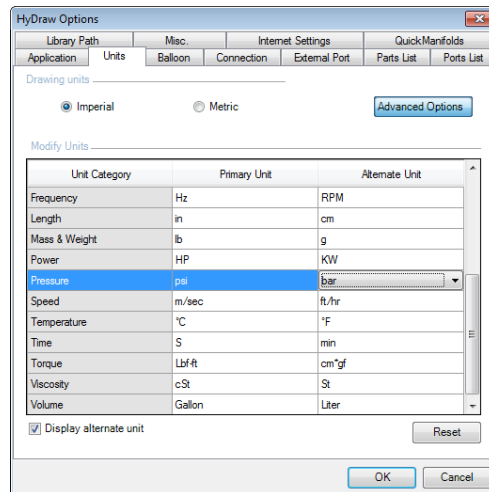


Units Tab – Advanced Options

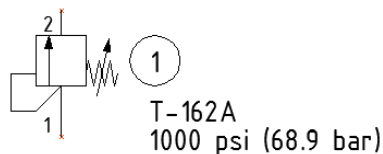
1. Configure each unit category by selecting the **Primary Unit**.
2. Select the **Display alternate unit** check box to display alternate unit along with the primary unit, if required.

The Alternate Unit column displays.

3. Configure the alternate units.
4. Click **Reset** button to restore the default units.
5. Click **OK** to apply and exit.



Units Tab – Display alternate unit



Displays Dual units in the drawing

3. External Port

Customize the external port in a circuit.

1. Click the **External Port** tab.

The External Port tab page displays.

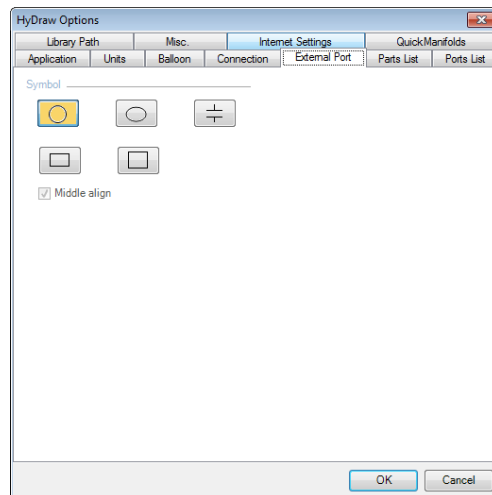
2. Click an appropriate button to configure the external port either circle, oval, line, rectangle, or square shape.

The respective shapes display in the port preview section of the HyDraw® Library Explorer window and can be inserted on the envelope line of the circuit.

3. Select the **Middle align** checkbox to align the port co-axially with the envelope line.

This option is applicable only for rectangle and square ports.

4. Click **OK** to apply and exit.



External Port tab page


4. Parts List

Customize the Parts List format.

1. Click the **Parts List** tab.

The Parts List tab page displays.

2. To rename a selected format,

type the new name in the text box and then click .


3. To add a new format,

type the new name in the text box and then click .


4. To delete a selected format, click .

5. To move up, select the item and click .

6. To move down, select the item and click .

7. To delete a property, click .

You cannot delete property name, item ID and quantity.

8. Click  to add Part list columns.

The Select Parts List Columns dialog box displays.

9. Select the appropriate property and click **OK**.

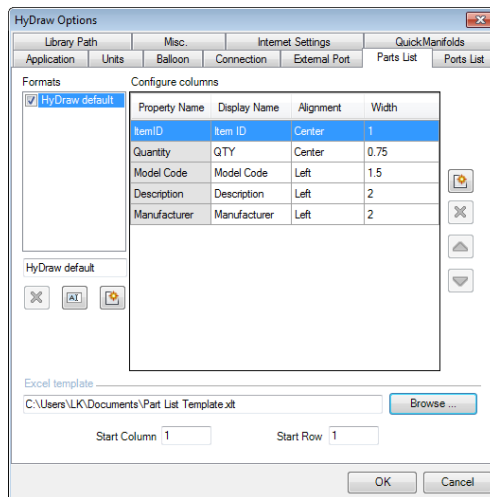
The selected properties are displayed in the Parts List tab page- Configure columns.

10. Click **OK**.

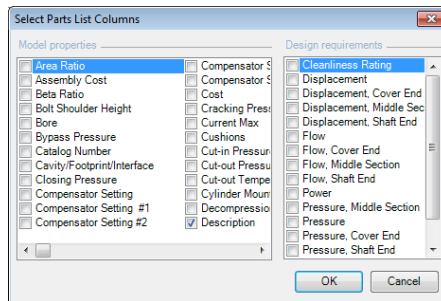
The selected properties are displayed in a tabular form when Parts list is created in the drawing.

Note:

To learn more about Parts List, refer Chapter 48.



Parts List tab page



Select Parts List Columns


5. Ports List

Customize the Ports List format.


1. Click the **Ports List** tab.

The Ports List tab page displays.


2. To rename a selected format,

type the new name in the text box and then click .

3. To add a new format,

type the new name in the text box and then click .

4. To delete a selected format, click .

5. To move up, select the item and click .

6. To move down, select the item and click .

7. To delete a property, click .

You cannot delete Property Name of Item ID.

8. Click  to add port list columns.

The Select Ports List columns checklist box displays.

9. Select the appropriate box (required property) and click **OK**.

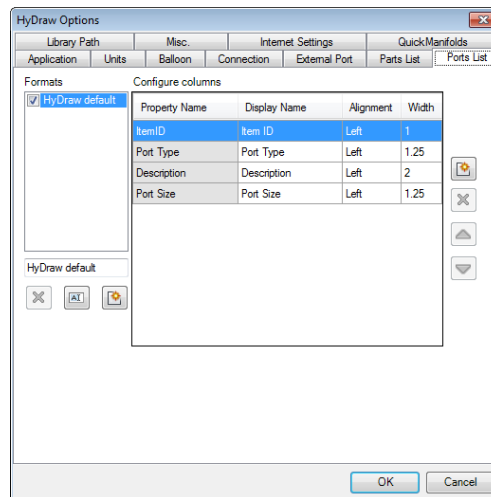
The selected properties are displayed in the Ports List tab page- Configure columns.

10. Click **OK**.

The selected properties are displayed in a tabular form when Ports list is created in the drawing.

Note:

To learn more about Ports List, refer Chapter 49.



Ports List tab page

6. Library Path

Multiple users have easy access to the library and components data from a common source over a network.

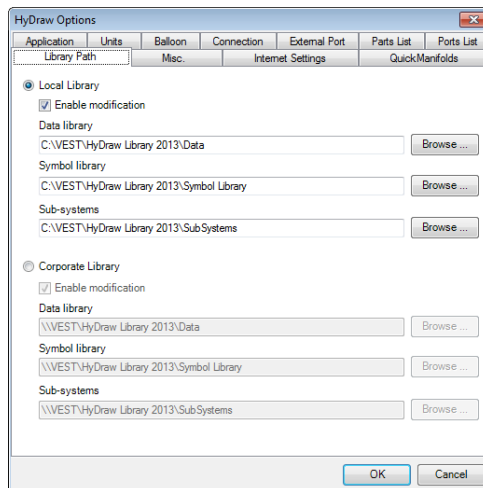
1. Click the **Library Path** tab.

The Library Path tab page displays.

2. Select the **Local Library** option.
3. Select the **Enable modification** check box to allow you to modify library.
4. Click **Browse...**
5. Navigate to the folder where the HyDraw® Library data is stored.
6. Repeat above steps for each of the specified HyDraw library paths.
7. Click **OK**.

All the HyDraw library paths are configured.

8. Select the **Corporate Library** option to configure second library path of your common Network library and repeat steps 3 to 7, if required.



Library Path tab page

Data Library

This section specifies the folder path that contains component data, library listing data, and manifold manufacturing estimation data.

Symbol Library

This section specifies the folder path that contains all libraries.

Sub-systems

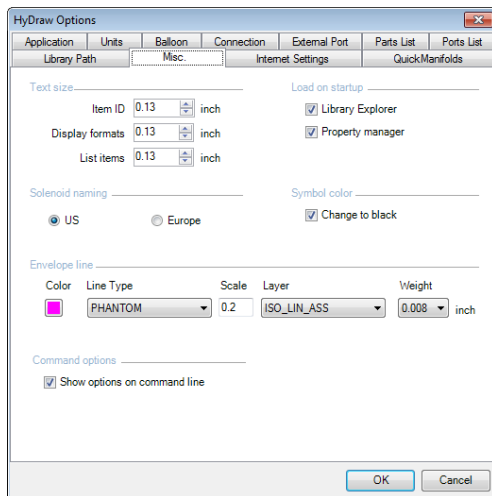
This section specifies the folder path that contains user-created circuit drawings and its menu data.

7. Misc.

Configure text size, envelope line, symbol color, and solenoid naming convention for the US and Europe pattern.

It also enables you to load the HyDraw® Library Explorer and the HyDraw Property Manager at startup.

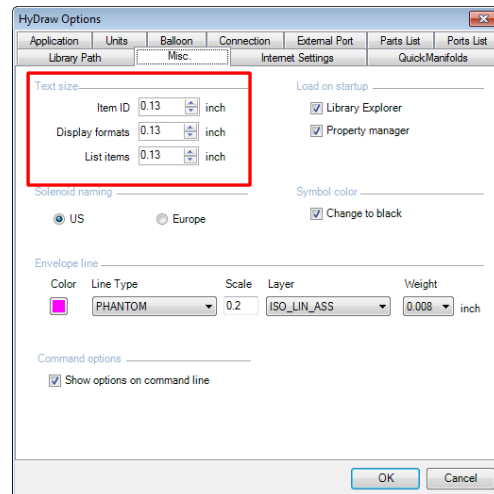
- Click **Misc.** to display the tab page.



Misc. tab page

Text Size

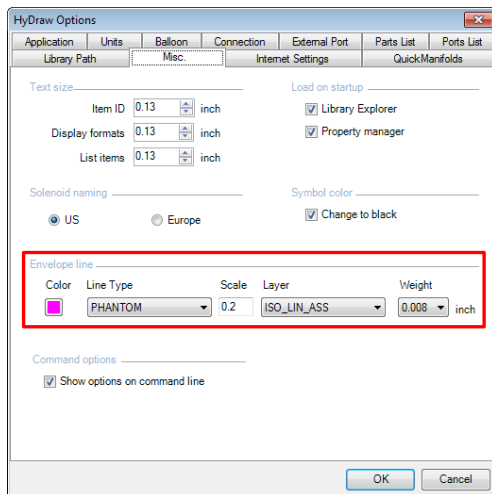
1. In the Text size group box, select the appropriate text size from the respective list box for item ID, display properties, and list items.
2. Click **OK** to effect the changes to the properties in the drawing.



Text size section

Envelope Line

1. In the Envelope line section, select the appropriate line pattern from continuous, phantom, and hidden list box options.
2. Click the **Color** button to open the color box and select the required color.
3. Enter the appropriate scale in the **Scale** textbox.
4. Click the combo box to select a layer from 0, Def points, ISO_LIN_ASS, ISO_LIN_FLU, ISO_LIN_HAT, ISO_LIN_UNI, ISO_TEX_DES, ISO_TEX_DES_EU, ISO_TEX_DES_US, ISO_TEX_IDE, ISO_TEX_POS, PORT_SYM.
5. In the **Weight** textbox, enter the appropriate weight of line.
6. Click **OK** to effect the changes in the library.

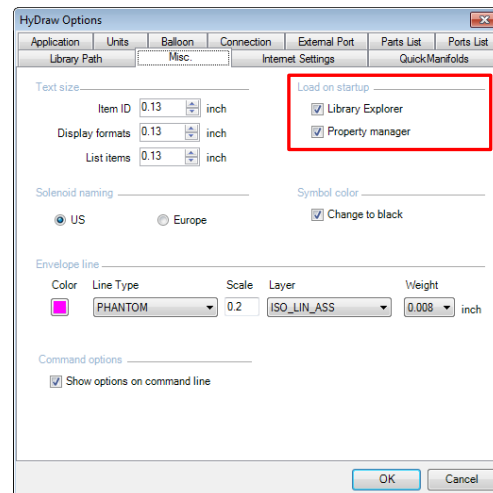


Envelope Line section

Load on startup

The Library Explorer and Property Manager can be loaded to HyDraw[®] on startup.

1. In the Load on startup group box, select the application you want to use for loading on startup.
The selected application loads and docks to the HyDraw drawing.
2. Click **OK** to effect the changes.

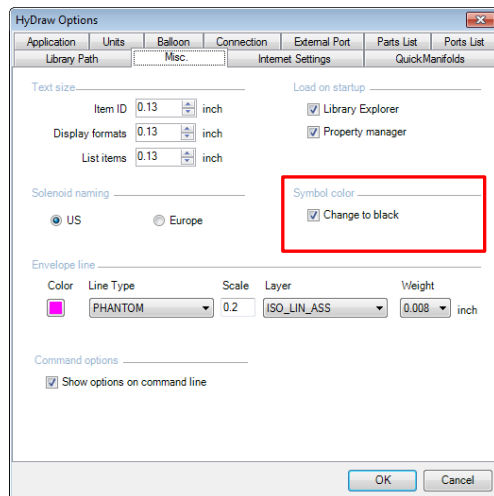


Load on startup section

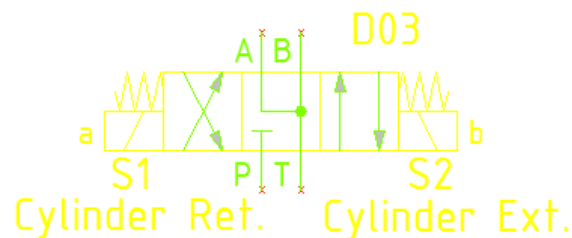
Symbol Color

All symbols in the HyDraw® library are created with the ISO standard colors. You can also change the color of these symbols to black.

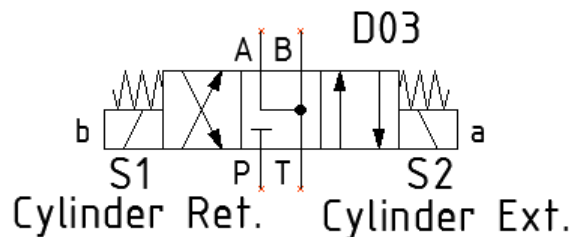
1. Select **Change to black** in the Symbol color section.
2. Click **OK** to affect the changes in the drawing.



Symbol color section



Colored Symbol



Black Symbol

Solenoid Naming

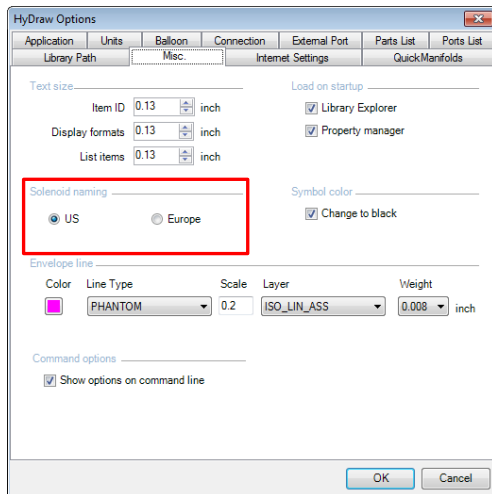
Solenoid naming conventions for Directional Control Valve symbols are different for both US and Europe patterns.

You can only view one naming convention for a pattern at a time.

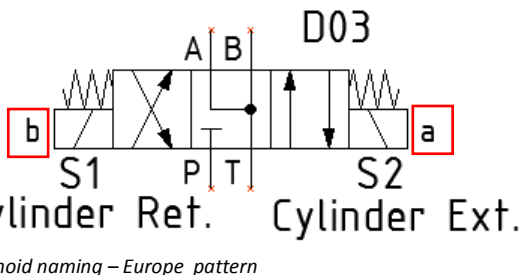
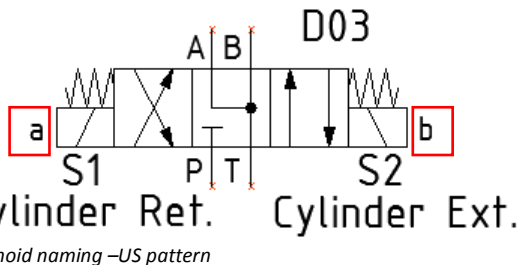
1. Select the appropriate pattern in the Solenoid naming section.

The selected pattern will affect the change of solenoid naming of symbols in the HyDraw® drawing.

2. Click **OK** to affect the changes.



Solenoid naming section

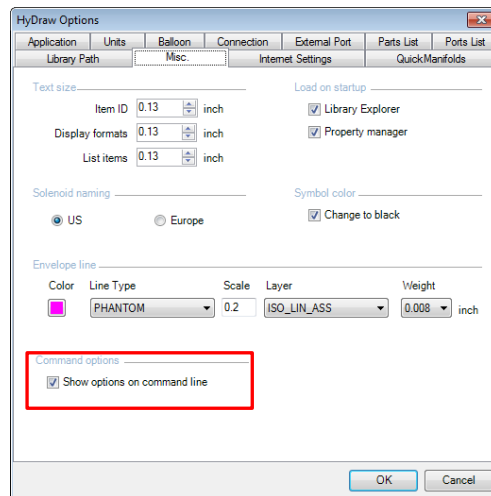


Command options

1. Select the **Show options on command line** check box, if you need to show the selection options on the command line.
2. Click **OK** to effect the changes.

Note:

If *Show options on command line* is unchecked, only some HyDraw® commands will display a dialog box.



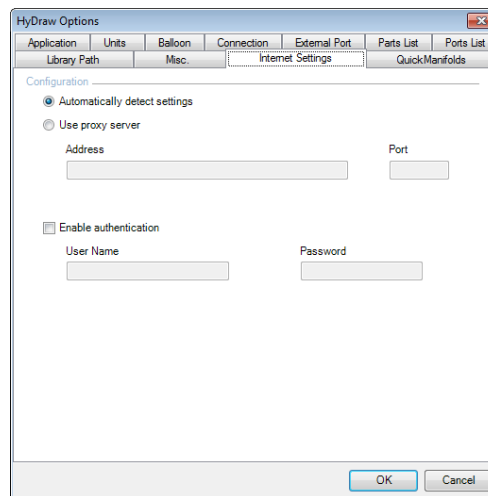
Command options

8. Internet Settings

Configure the Internet connection for FluidPowerTools and QuickManifolds*.

- Click **Internet Settings** in the Services tab of the HyDraw® CAD ribbon menu.
The Internet Settings of the HyDraw Options dialog box displays.
- Configure the required settings.

Refer Chapter 70, Para 2 for detailed configuration.



HyDraw Options – Internet Settings

9. QuickManifolds

Save the login information on QuickManifolds.com and select the Design data library.

1. Click the **QuickManifolds** tab.

The QuickManifolds tab page displays.

2. Enter the logon information, i.e. User Name and Password.

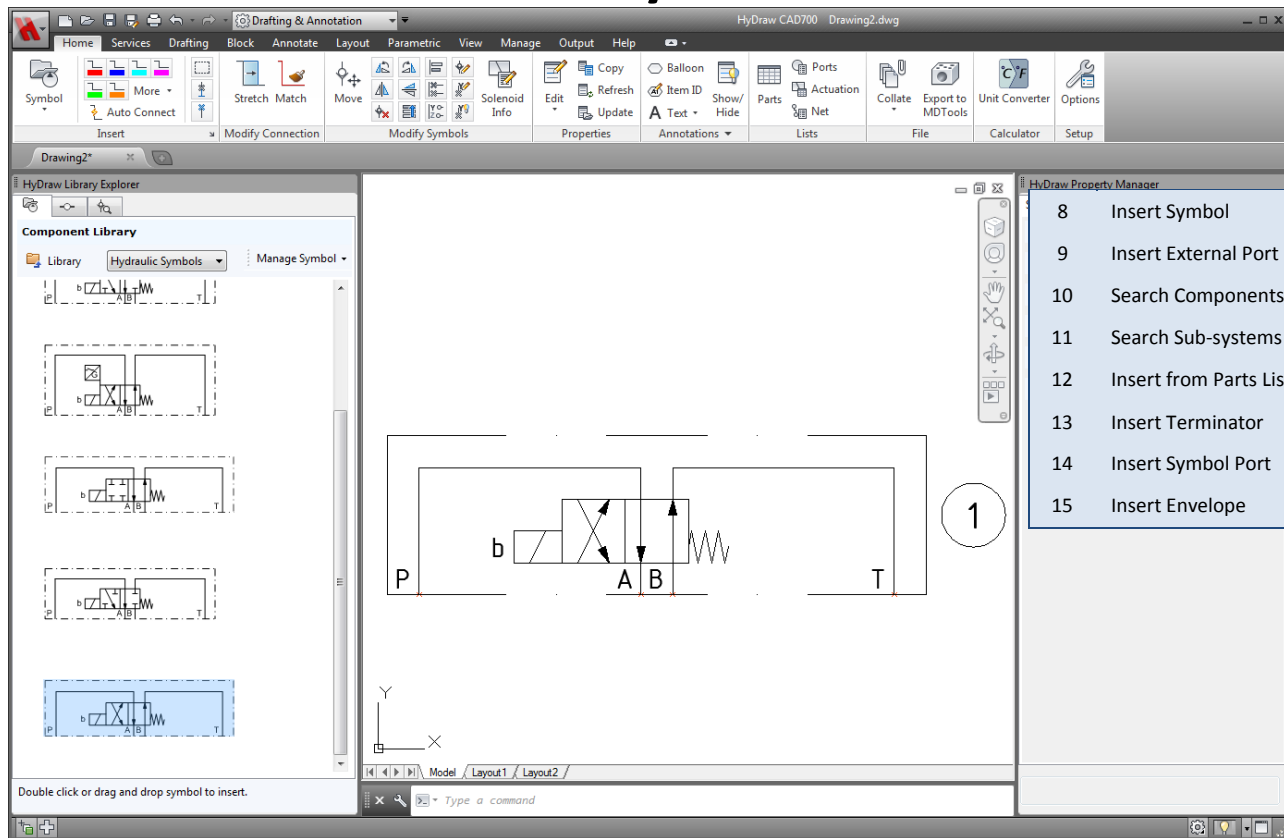
The user name and password are saved and used to login at QuickManifolds.com.

3. Select **QuickManifolds Library** or select and set the **My MDTools Library** path to use the corresponding library for the QuickManifolds design.

The screenshot shows the 'HyDraw Options' dialog box with the 'QuickManifolds' tab selected. The dialog has a title bar with a close button. Below the title bar is a tabbed interface with tabs for 'Application', 'Units', 'Balloon', 'Connection', 'External Port', 'Parts List', and 'Ports List'. The 'QuickManifolds' tab is active, showing a 'Logon information' section with 'User Name' and 'Password' text boxes. Below this is a 'Design data' section with two radio buttons: 'QuickManifolds library' (selected) and 'My MDTools library'. Under 'My MDTools library' is a 'Path' text box and a 'Browse...' button. At the bottom right are 'OK' and 'Cancel' buttons.

HyDraw Options – QuickManifolds

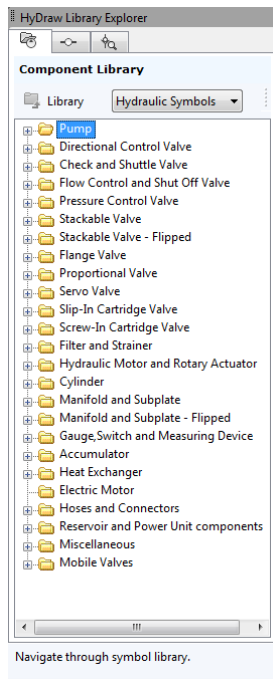
Insert Symbols



8. Insert Symbol

The *Insert Symbol* command in the Home tab of the HyDraw® CAD ribbon menu enables you to insert symbols, external ports, and component models into the drawing.

The Component library is a logically structured symbol library of hydraulic, pneumatic, and electrical systems.



Insert a symbol into the drawing

1. Select the appropriate library and navigate to the required symbol.
2. Drag the symbol from the HyDraw Library Explorer window into the drawing.

Alternatively,

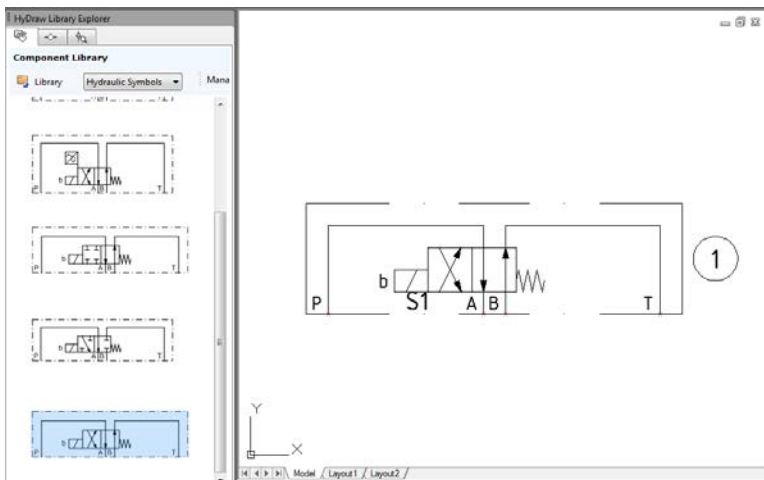
1. Double click the symbol on HyDraw Library Explorer window.
Symbol preview appears on positioning on the drawing space.

The Specify insertion point prompt displays.

2. Specify the IP(Insertion Point),

The symbol is placed on the drawing.


Logically structured Component Library



Double click or Drag and drop symbol from Component Library into the drawing

9. Insert External Port

*Insert ports on the envelope line in a circuit drawing.
Configure and edit the ports to suit the circuit requirements.*

1. Click  tab on the HyDraw® Library Explorer window.
The External Port Library tab page displays.
2. Click on the Configure External Port caption bar to expand, if the section is not open.
3. Type the **Item ID** in the text box, for example, P, T, 1.
The default Item ID is '?'.
4. Select **Pressure line port** or **Return line port**.
5. Enter parameters for **Pressure** and **Flow**.
6. Select **Port Type** from SAE O-ring, SAE Flange, BSP, NPT, and Metric.

*On selection, different port sizes of the respective port type are displayed automatically.
Choose the required one.*

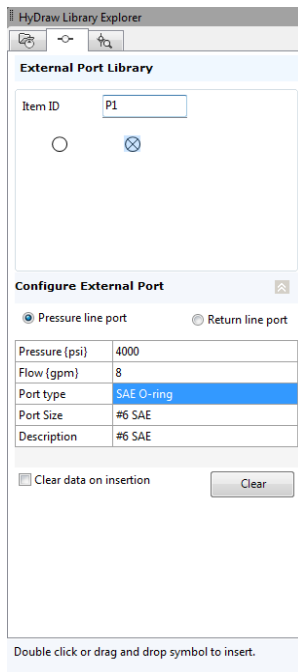
7. Select and drag the plugged or unplugged port from the preview section into the drawing.

Alternatively,

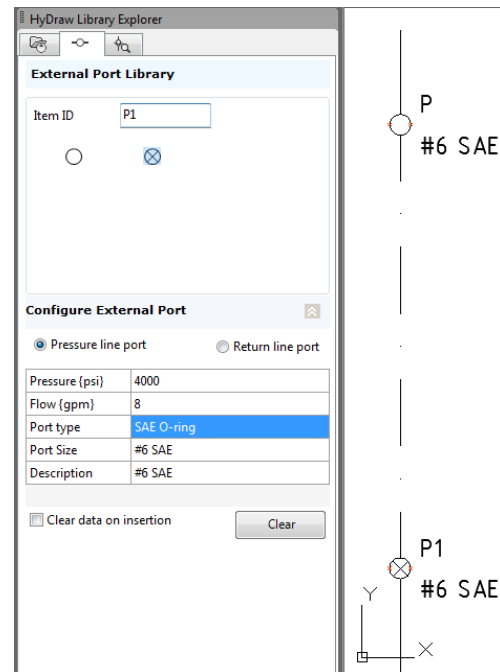
Double click the plugged or unplugged port.

*The Specify insertion point displays on the command window.
Once you specify the insertion point, the port is inserted into the drawing.*

If the port symbol is placed over the envelope line, it attaches itself to the envelope line.



External Port Library tab page



External Port inserted into the drawing

1. Port Data - Select from Library




1. Click Home > **Edit** Edit on the HyDraw® CAD ribbon menu.

The HyDraw Property Manager window displays.

2. Select the external port.

The HyDraw Property Manager displays the properties of the external port.

3. Click  on the Port data caption bar to select the port data from the library.

The Configure Port dialog box displays.

4. Select the Pressure line port/Return line port.
5. Select **Port Type** from the drop down: SAE O-ring, SAE Flange, BSP, NPT, and Metric.

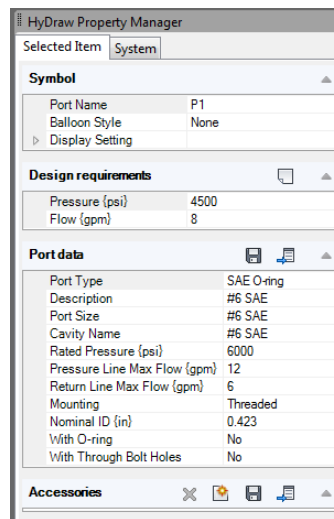
On selection, different port sizes of the respective port type are displayed automatically.

Choose the required one.

6. Click **OK** to select the selected port data from the library.

Note:

The port data can embed **With O-ring** and **With Through Bolt Hole** from HyDraw to MDTools®.



The screenshot shows the HyDraw Property Manager window with the 'System' tab selected. The 'Port data' section is expanded, displaying a table of port properties. The 'Port Type' is set to 'SAE O-ring'. The 'Accessories' section at the bottom is also visible.

Symbol	
Port Name	P1
Balloon Style	None
Display Setting	

Design requirements	
Pressure (psi)	4500
Flow (gpm)	8

Port data	
Port Type	SAE O-ring
Description	#6 SAE
Port Size	#6 SAE
Cavity Name	#6 SAE
Rated Pressure (psi)	6000
Pressure Line Max Flow (gpm)	12
Return Line Max Flow (gpm)	6
Mounting	Threaded
Nominal ID (in)	0.423
With O-ring	No
With Through Bolt Holes	No

Accessories	
-------------	--

HyDraw Property Manager – Port

Configure External Port

You can configure different external ports shapes.



1. Click **Options** from the HyDraw® CAD ribbon menu.

2. Click the **External Port** tab.

The External Port tab page displays.

3. Select the appropriate port shape, such as circle, oval, line, rectangle, or square.

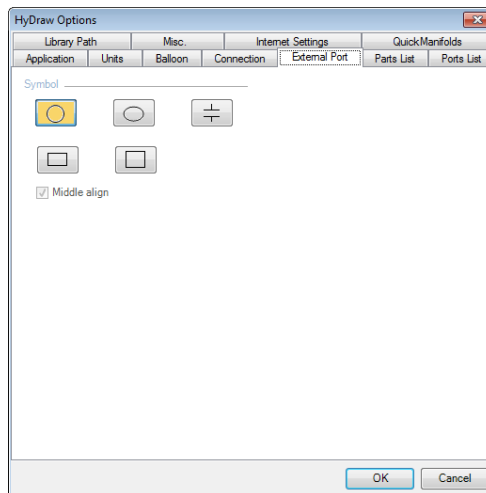
The respective shape displays in the Port Preview section of the HyDraw Library Explorer window.

The external port can be placed on the envelope line of the circuit.

4. Select the **Middle align** checkbox to align the port co-axially with the envelope line.

This option is applicable only for rectangular and square ports.

5. Click **OK** to apply and exit.




External Port tab

10. Search Components

The Search from Library feature is used to search a component or sub-system from the library.

You can search the Model Family or Model Code of a component type or category of a particular manufacturer or different manufacturers.

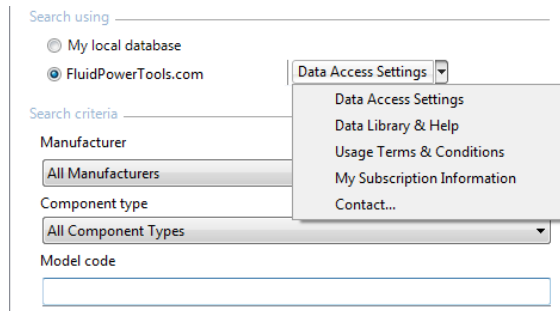
Search Components

1. Click  tab on the HyDraw® Library Explorer window.
The Search From Library tab page displays.
2. Select **Components**.
3. Select an appropriate application.
4. Select appropriate search database, My local database or FluidPowerTools.com database.

If the My local database option is selected, the program searches components in the user's local database.

If the FluidPowerTools.com database option is selected,

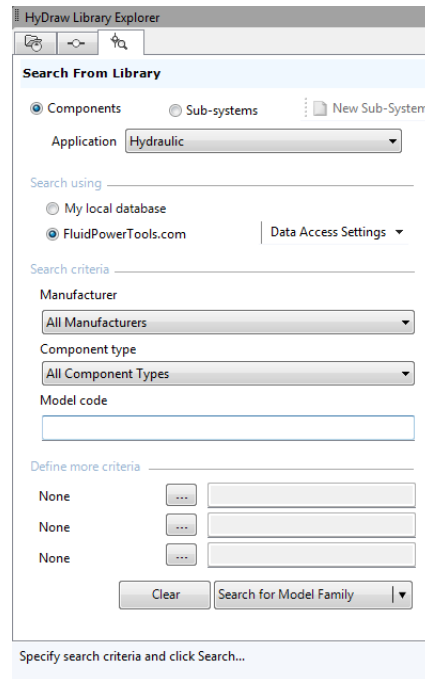
In Data Access Settings, select the manufacturer database to search for the components.



Data Access Settings

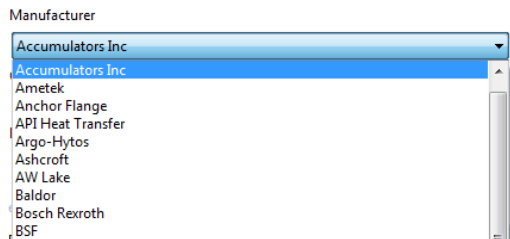
The Data Access Settings drop down provides other controls, which includes:

- Data Access Settings
- Data Library & Help
- Usage terms & conditions
- My Subscription information
- Contact...



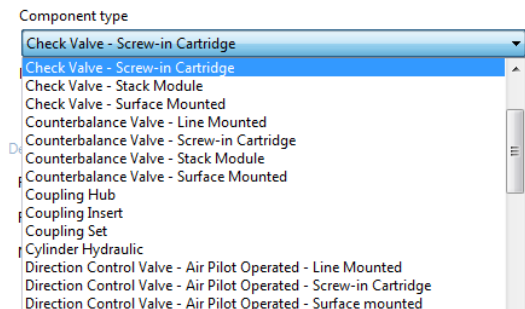
Default Search tab page

5. Select the manufacturer from the drop-down list, if *My local database* is selected.



Manufacturer options

6. Select the appropriate component type.



Component type options

7. Enter the Model Code to search a particular component.

Search criteria

Manufacturer
Accumulators Inc

Component type
Check Valve - Screw-in Cartridge

Model code

Enter Model Code

8. Define more Criteria

Define more criteria

Rated Flow{gal/sec }

Rated Pressure{psi}

None

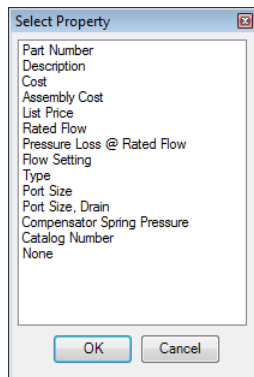
Define More Criteria options

- 8.1 For precise search, define custom search parameters in the Define more criteria section.
- 8.2 Click to view the Select Property box, which displays common properties.
- 8.3 Select the property you want to assign.

- 8.4 Enter the property value, for example 10,
or range, for example 10-20.

Property range must be separated by a hyphen (-).

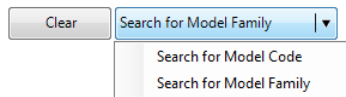
9. Select Property



Select Property

10. Click the **Search for Model Code** button.

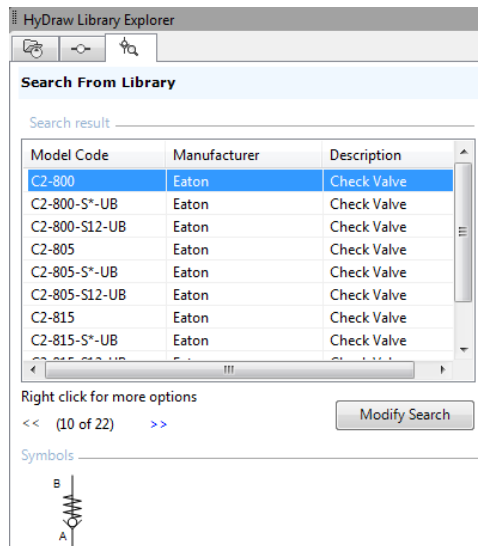
All model codes with the assigned custom properties are displayed in the Search results pane.



Searching model code with precise criteria

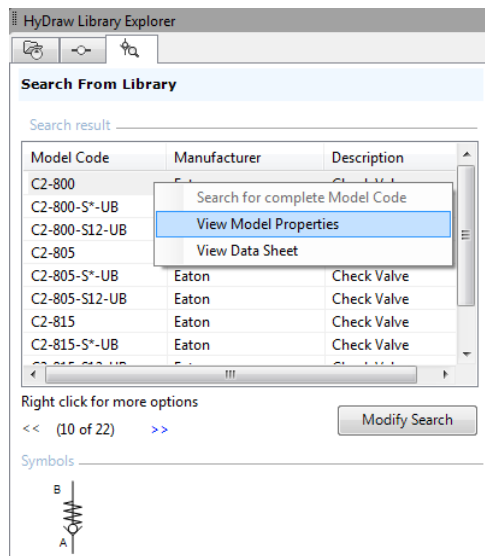
11. Select the appropriate model code in the preview pane.

The Search results are displayed in the pane.

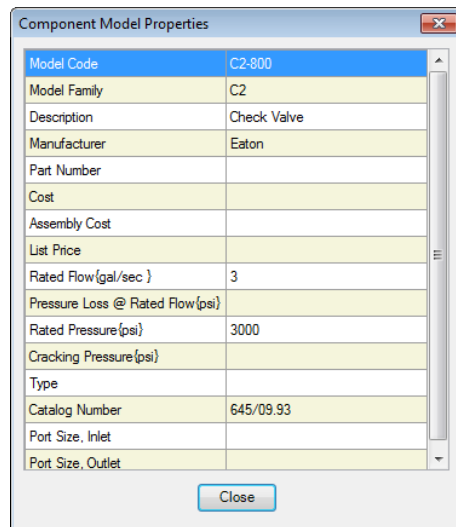


Preview symbols

12. Right click and select **View Model Properties** from the context menu to display the component data window.
- The **Component Model Properties** window displays details about the component.*
13. Right click and select **View Data Sheet** from the context menu to view the data sheet attached to the model code.



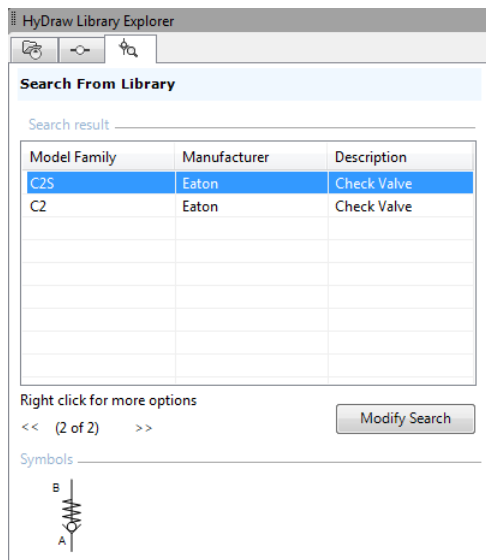
Model code context menu



Component data

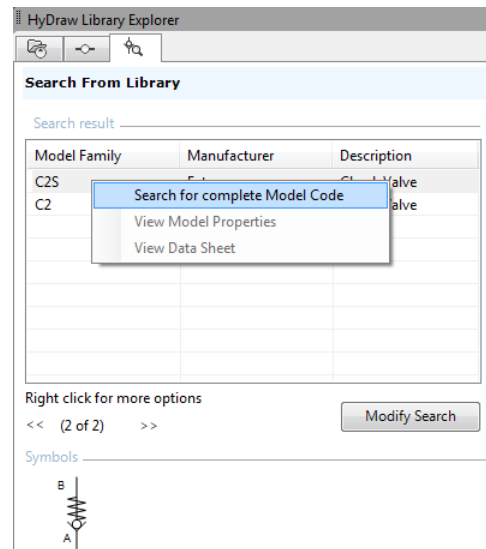
14. Click search for **Model Family**.

All model families with assigned custom properties are displayed in the Search results pane.



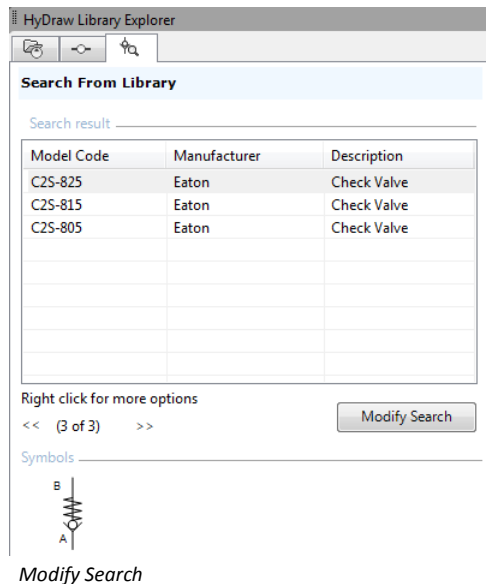
Model Family search results

15. Right click and select **Search for Complete Model Code** from the context menu to display all model codes in the model family.



Model Family context menu

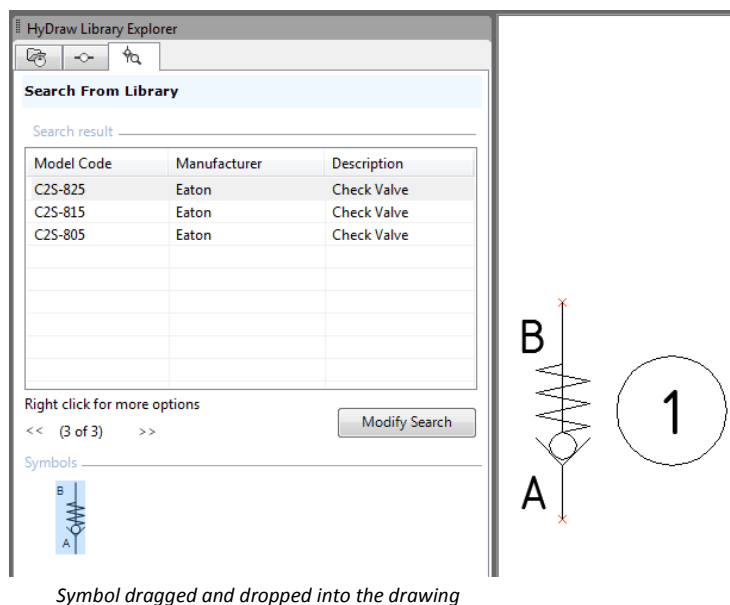
16. Click **Modify Search** to return to the main search window and search with different inputs, if required.




17. Select the symbol in the preview pane; drag and drop or alternatively double click the symbol to insert the symbol into the drawing.

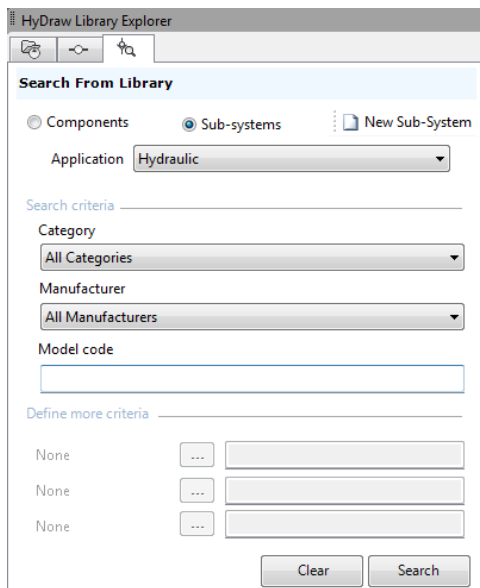
The Specify insertion point prompts displays.

18. Specify IP (Insertion Point) on the drawing and the symbol is inserted.



11. Search Sub-systems

1. Click  tab on the HyDraw® Library Explorer window.
The Search From Library tab page displays.
2. Select **Sub-systems**.
3. Select the appropriate application.



HyDraw Library Explorer

Search From Library

☐ Components ☒ Sub-systems ☐ New Sub-System

Application Hydraulic

Search criteria

Category All Categories

Manufacturer All Manufacturers

Model code

Define more criteria

None ...

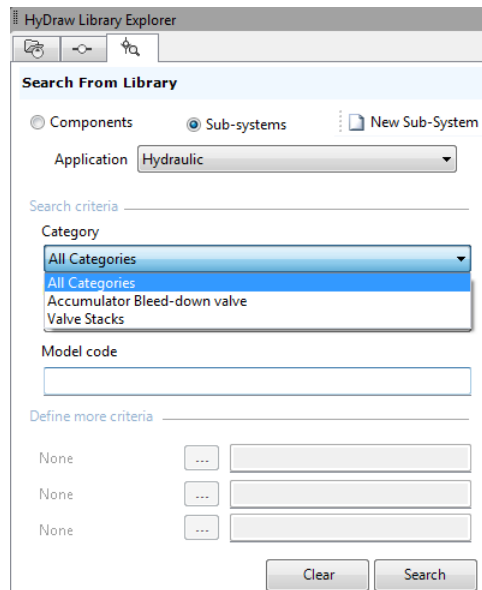
None ...

None ...

Clear Search

Sub-systems tab page

4. Select the appropriate category.



HyDraw Library Explorer

Search From Library

☐ Components ☒ Sub-systems ☐ New Sub-System

Application Hydraulic

Search criteria

Category All Categories

Model code

Define more criteria

None ...

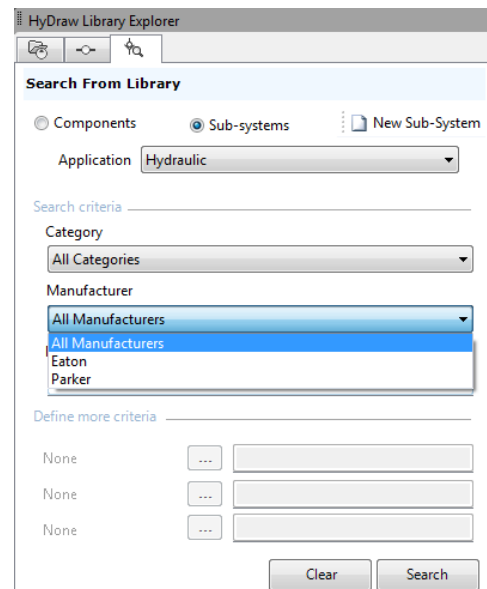
None ...

None ...

Clear Search

Category options

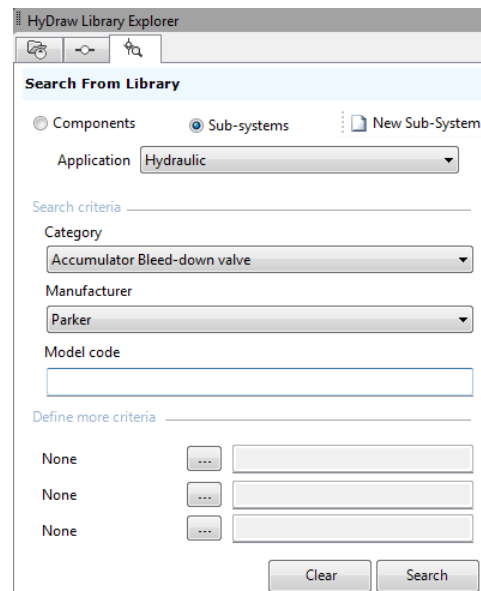
5. Select the appropriate manufacturer.



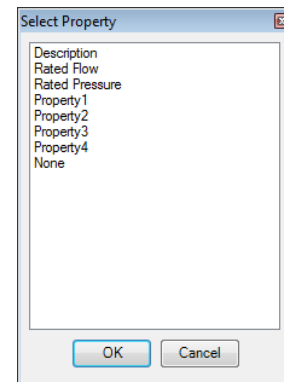
Manufacturer options

6. Enter the Model Code to search the particular component

- For precise search, define custom search parameters in the Define more criteria section.
- Click [...] to view the Select Property box, which displays common properties.
- Select the property you want to assign.
- Click OK.



Searching model code with precise criteria

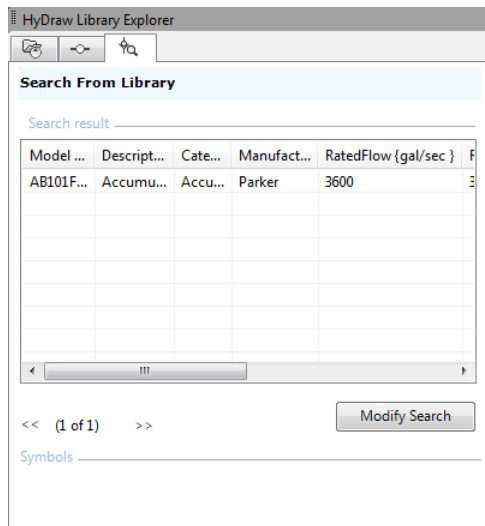


Select Property

7. Click the **Search** button.

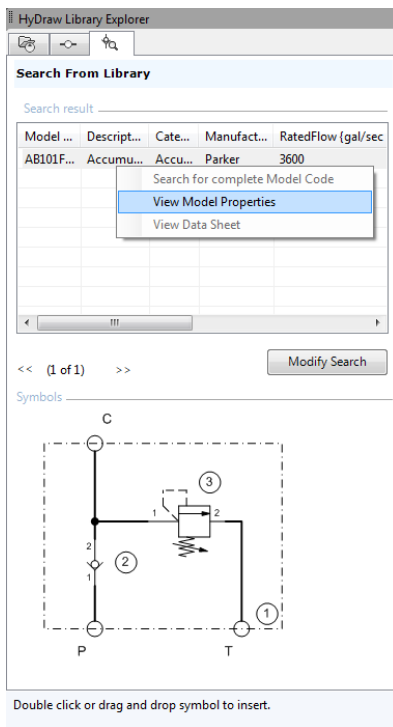
All sub-systems with assigned custom properties display in the Search results pane.

8. Click on the search results to display the selected sub-system in the preview pane.



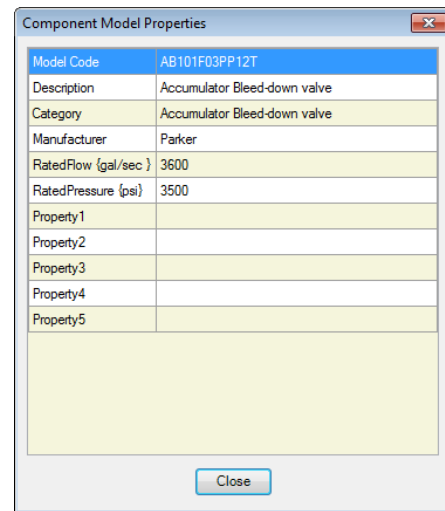
Search Model Code

9. Right click and select **View Model Properties** from the context menu to display the component data window.



View Model Properties

The Component Model Properties window display details about the sub-system.

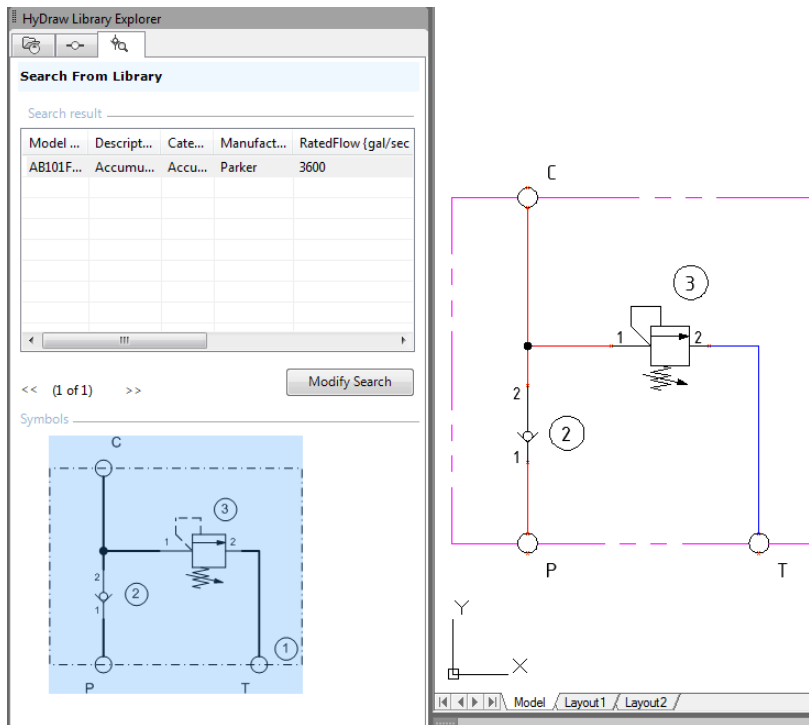


Component Model Properties

10. Select the sub system in the preview pane; drag and drop it into the drawing.
Alternatively, double click the symbol.

The Specify insertion point prompts displays.

11. Specify IP (Insertion Point) on the drawing and the symbol is inserted.

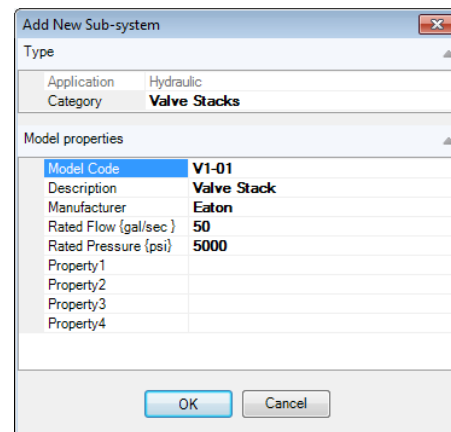


12. Insert a New Sub System

You can add a new sub system by clicking the **New Sub System** link on the search page.

- Enter the New Sub-system properties.
- Click OK.
- Select the Sub-system from the drawing and provide the insertion point.

The selected sub System is saved to the HyDraw library.



Add New Sub-system

12. Insert from Parts List

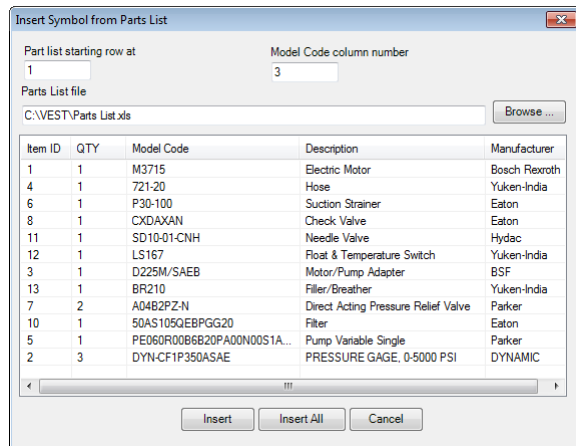
The Insert from Parts List feature enables you to insert symbols from Parts List in Excel.

Each item in the Parts List is identified by its unique model code. Therefore, the parts list must contain a model code for each item in the list.

1. Select Home > **From Parts List** from the Insert Symbol option on the HyDraw® CAD ribbon menu.

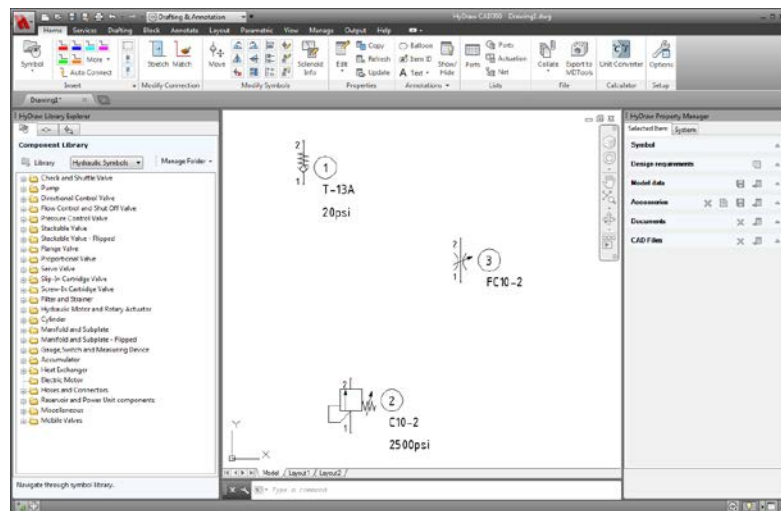
The Insert Symbol from Parts List dialog box displays.

2. Enter the **Part list starting row at** option and the **Model Code column number**.
3. Click **Browse...**



Insert Symbols From Parts List dialog box

The Select Parts List Excel file dialog box displays.



Symbols inserted in the drawing from Parts List

4. Select the required Excel file containing the parts list and click **Open**.
Contents of the Excel file are displayed.
5. Type **Model Code column number** in the textbox, if it is not automatically entered.
6. Select the symbols and click Insert or Insert All to insert all the symbols into the drawing.

13. Insert Terminators

Insert terminators dynamically for any unused component ports and connection lines.

1. Click Home > **Terminator**  from the HyDraw® CAD ribbon menu.

The Select symbol port prompt displays.

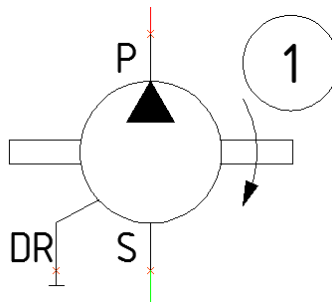
2. Select the symbol port for the terminator insertion.

The terminator is inserted at the location.

Terminators are inserted automatically for all unused ports of all selected symbols and unused connection lines.

Note:


- The terminator indicates the unused component port.
- Terminator is essential in the Net List creation.
A net remains incomplete, if a port is left unconnected.
- The Net List can indicate unconnected circuit lines and ports.
- When you rotate the symbol, the terminator also rotates along with it.

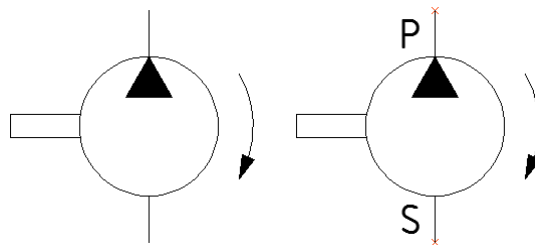


Dynamic terminators

14. Insert Symbol Port

Insert connection points on the ports of a symbol.


1. Click Home > **Insert Symbol port**  on the HyDraw® CAD ribbon menu.
The Select Symbol to Insert Port prompt displays.
2. Select the symbol.
The Port Name: prompt displays.
3. Enter the Port Name in the command window and press the **Enter** key.
The Other Name: prompt displays.
4. Enter the other name in the command window, if required and press the **Enter** key.
The Specify Port Insertion Point: prompt displays.
5. Specify the Port Insertion point on the symbol.
A small red cross appears at the point where the port is inserted.



Inserting a Symbol Port

15. Insert Envelope

Insert an envelope to define a boundary for a manifold or a system.

1. Click Home >  Envelope from the HyDraw® CAD ribbon menu.

The Specify first corner point prompt displays.

2. Select the first corner point on the drawing.

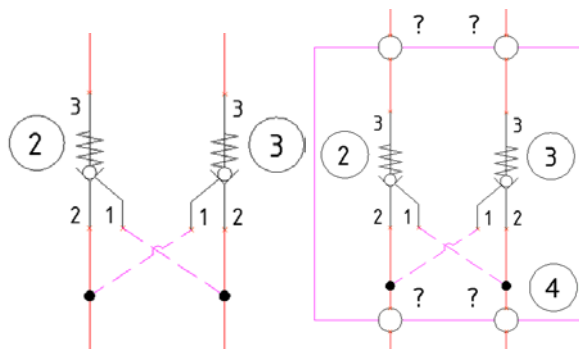
The Specify other corner point prompt displays.

3. Select the other corner point on the drawing.

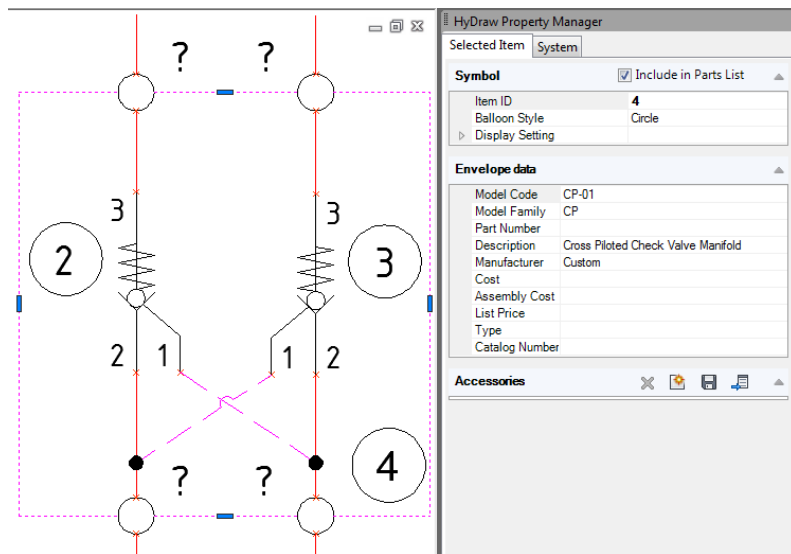
The envelope is inserted.

The smart envelope has following functionalities:

- a. Insert ports automatically on the envelope line intersection with connection lines.



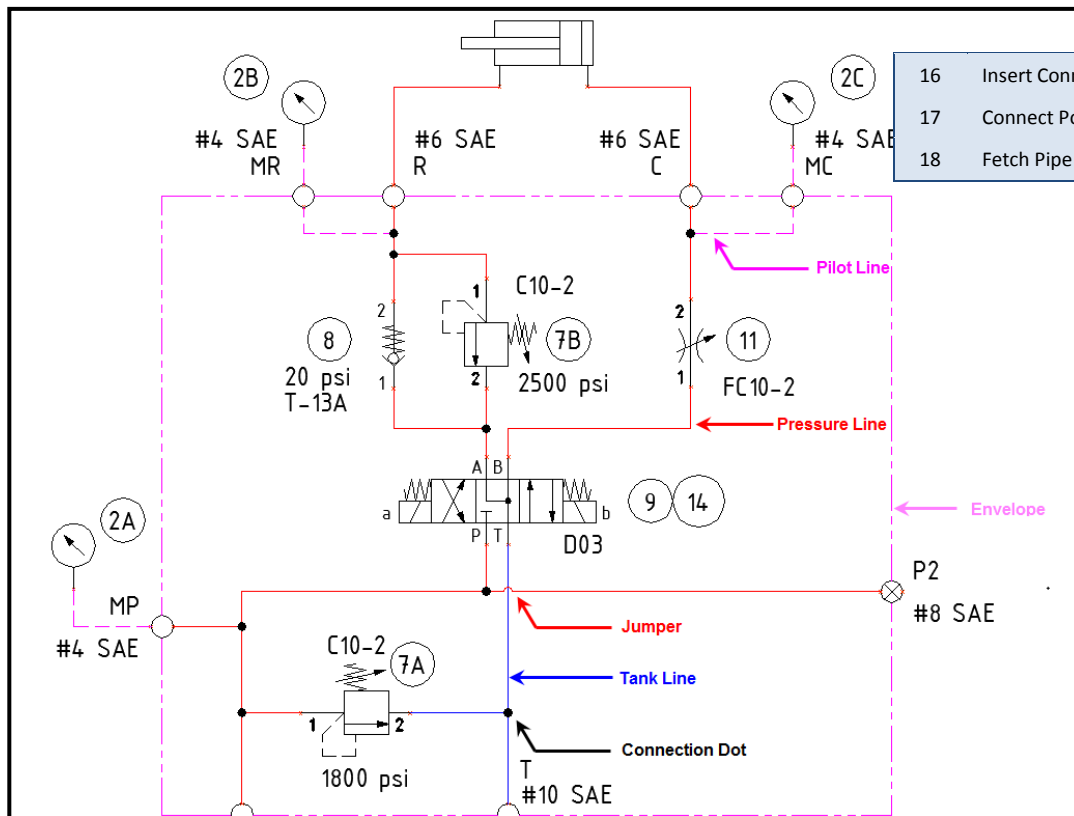
Ports automatically inserted on envelope line intersection



Envelope data of the selected Envelope Line

- b. Envelope line is made of polyline and can be easily resized by the resize handle.
- c. External ports are glued to the envelope and relocates the ports and maintain connectivity while resizing the envelope.
- d. Envelope data is attached to the envelope line.

Make Connections



- 16 Insert Connection
- 17 Connect Ports and Symbols
- 18 Fetch Pipe and Tube Data

16. Insert Connection

Interconnect symbols and create a circuit.

Auto Connect: The Auto Connect property, when enabled before making a connection, automatically creates the connection between the two selected points.

When the Auto Connect property is disabled, the connection has to be created manually between the selected points. When Ortho is ON, the termination point can be selected only in the four mutually perpendicular directions of the starting point. When Ortho is off, the termination point can be anywhere around the start point.

1. Enable/Disable **Auto Connect** on the HyDraw® CAD ribbon menu.
2. Click on the Connection type from Pressure, Tank, Pilot, Drain, Suction, or Custom from Line1, Line2, Line3, Line4, and Line5 options on the HyDraw® CAD ribbon menu.

Connection lines are assigned with the default ISO color and line weight. You can customize the connection lines.

The Select first connection point, prompt displays.

3. Select the first connection point on the drawing as the start point.

When the Auto Connect option is enabled:

The Select second connection point prompt displays.

4. Select the second connection point as the termination point.

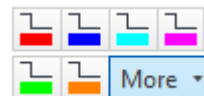
When the Auto Connect option is disabled:

The Select Next point prompt displays.

5. Select the next connection point.
6. Press the **Enter** key when the connection is complete.

The connection line is drawn between the two points.

You can customize the connection lines.



Insert Connection sub menus

17. Connect Ports and Symbols

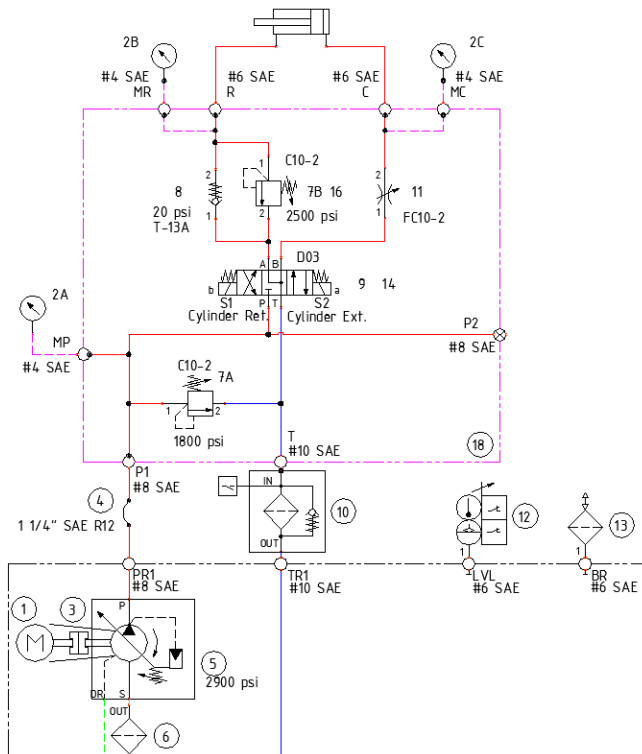
To connect two ports of different symbols, click one port of a symbol and then click the other port.

When two lines cross each other, a jumper is inserted over one line dynamically. This indicates the connection is not ended.

When one line terminates on another, a connection dot is inserted dynamically at the termination point.

Note:

- To insert jumpers automatically for non-intersecting connection lines, set the option in the Misc. tab of the HyDraw[®] Options ribbon menu.
- Connection dots are inserted automatically when one connection line terminates on the other.



Connection lines inserted to create circuit

18. Fetch Pipe and Tube Data

Connection lines can be assigned to the Tube and Pipe data from the Library, based on the design requirements.

1. Select the **connection line**.
2. Specify the **design requirements, pressure and flow** for the selected connection lines in the HyDraw® Property Manager.

3. Click the **Select from Library** icon.

The Fetch Pipe/Tube from Library dialog box displays.

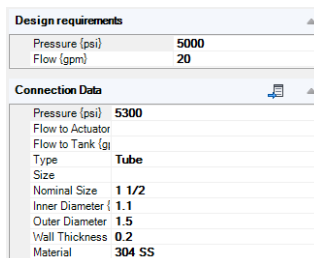
4. Select either **Pressure line** or **Return line**.
5. Select **Type**, i.e. Pipe/Tube.
6. Select **Material**.

Pressure and flow are automatically displayed in the Design requirements section.

Velocity is displayed per the recommended velocity set in in the HyDraw Options dialog box.

The inner diameter is based on the flow and velocity, and the appropriate pipe/tube is selected by default in the grid displaying all the other available pipes/tubes with velocity.

7. Select the required pipe or tube.
8. Click **OK** and exit.

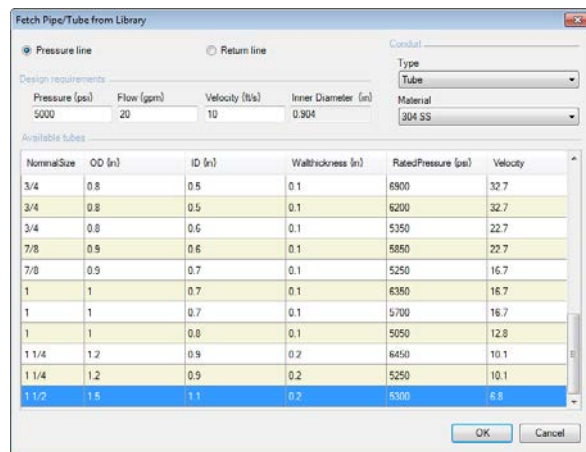


The dialog box is titled "Design requirements" and "Connection Data". It contains fields for Pressure (psi), Flow (gpm), Type, Nominal Size, Inner Diameter (in), Outer Diameter (in), Wall Thickness (in), and Material.

Design requirements	
Pressure (psi)	5000
Flow (gpm)	20

Connection Data	
Pressure (psi)	5300
Flow to Actuator	
Flow to Tank (g)	
Type	Tube
Size	
Nominal Size	1 1/2
Inner Diameter (in)	1.1
Outer Diameter (in)	1.5
Wall Thickness (in)	0.2
Material	304 SS

HyDraw Property Manager – Connection Data



The dialog box is titled "Fetch Pipe/Tube from Library". It has tabs for "Pressure line" and "Return line". It contains fields for Design requirements (Pressure, Flow, Velocity, Inner Diameter) and a table of Available tubes.

Design requirements:

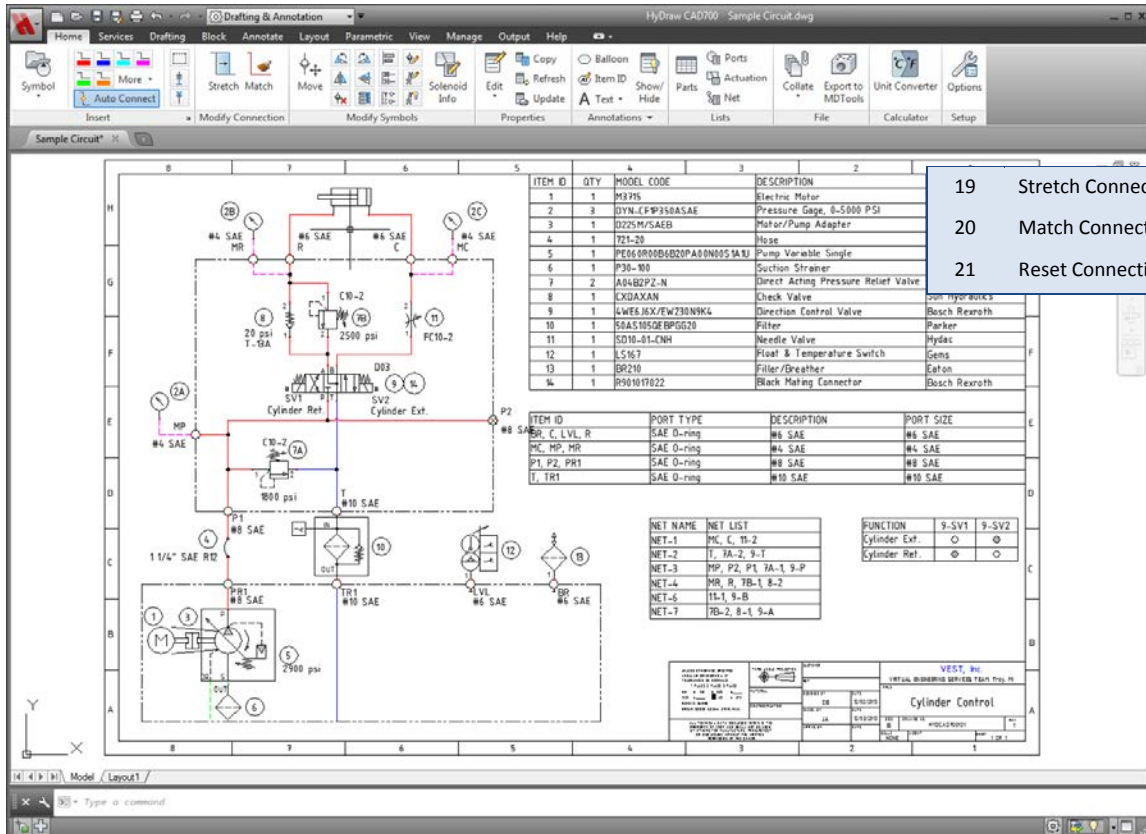
Pressure (psi)	Flow (gpm)	Velocity (ft/s)	Inner Diameter (in)
5000	20	10	0.904

Available tubes:

Nominal Size	OD (in)	ID (in)	Wall thickness (in)	Rated Pressure (psi)	Velocity
3/4	0.8	0.5	0.1	6900	32.7
3/4	0.8	0.5	0.1	6200	32.7
3/4	0.8	0.6	0.1	5350	22.7
7/8	0.9	0.6	0.1	5850	22.7
7/8	0.9	0.7	0.1	5250	16.7
1	1	0.7	0.1	6350	18.7
1	1	0.7	0.1	5700	16.7
1	1	0.8	0.1	5050	12.8
1 1/4	1.2	0.9	0.2	6450	10.1
1 1/4	1.2	0.9	0.2	5250	10.1
1 1/2	1.5	1.1	0.2	5300	6.8

Fetch Pipe/Tube from Library

Modify Connection



- 19 Stretch Connections
- 20 Match Connections
- 21 Reset Connections

19. Stretch Connections

Stretch an existing connection line.



1. Click Home > **Stretch Connection** on the HyDraw® CAD ribbon menu.

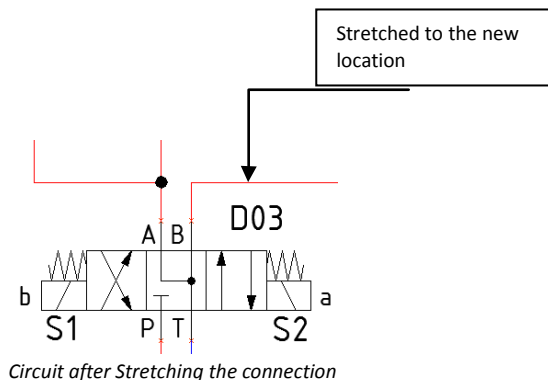
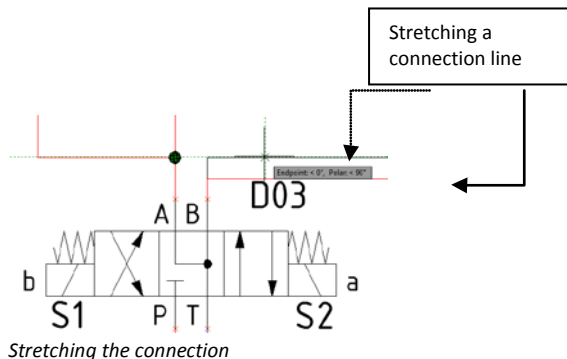
The Select a connection prompt displays.

2. Select a connection line.

The Specify point prompt displays.

3. Click a point on the drawing to specify the new location of the connection line.

The Connection line gets stretched.



20. Match Connections

Match the connection properties of one connection line with another.



1. Click Home > **Match Connection** on the HyDraw® CAD ribbon menu.

The Select Source Connection prompt displays.

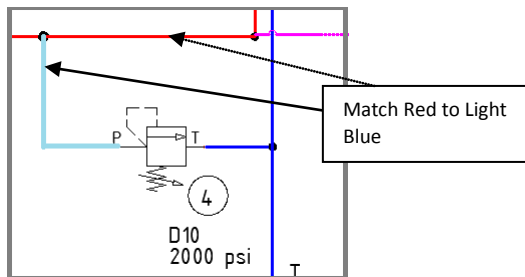
2. Select the source connection line.

The Select Destination connection(s) prompt displays.

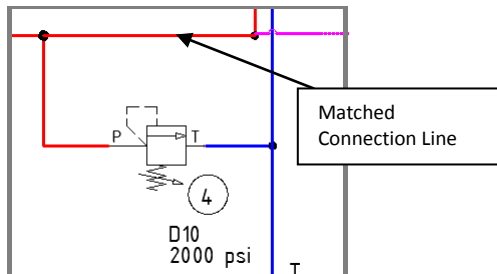
3. Select a single or multiple connection lines.

4. After completion of selection, press the **Enter** key.

The Connection properties are copied.



Circuit Before Matching Suction Connection line with Pressure Connection Line



Circuit After Matching Connection

21. Reset Connections

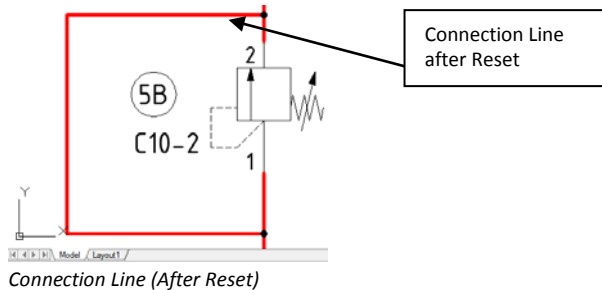
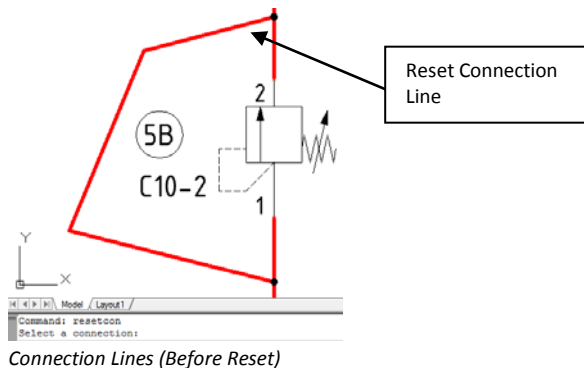
Convert a bend (slanting) connection line in to a right angled connection line.

1. On the command window (line), type the **Resetcon** command.

The Select a connection prompt displays.

2. Select the connection line that you want to reset.

The connection line resets to the right angled connection line.



Specify Properties

The screenshot displays the HyDraw CAD700 software interface. The main workspace shows a hydraulic schematic with various components like pumps, valves, and cylinders. A table on the right lists the components used in the drawing. Below the table, there are sections for 'NET NAME', 'NET LIST', 'FUNCTION', and 'Accessories'. The 'Accessories' section is highlighted with a red box, showing a list of properties for a selected item.

ITEM ID	QTY	MODEL CODE	DESCRIPTION	MANUFACTURER
1	1	MB715	Electric Motor	Bulldo
2	3	DYN-L1P150ASAE	Pressure Gauge, 0-5000 PSI	DYNAMIC
3	1	DQ25M/SAEB	Motor/Pump Adapter	BSF
4	1	721-2	Hose	Parker
5	1	PE66R006R20PA00N05IAU	Pump Variable Single	Parker
6	1	P10-100	Swivel Frame	Flow-ey
7	2	AB40P2-N	Direct Acting Pressure Relief Valve	Parker
8	1	CXDAXAN	Check Valve	Sun Hydraulics
9	1	4WE6JX/EW230NKK	Direction Control Valve	Bosch Rexroth
10	1	50AS1050EBPG00	Filter	Parker
11	1	SD10-01-CN	Needle Valve	Hydac
12	1	LS167	Fluid & Temperature Switch	Bemis
13	1	UK210	Filter/breather	Eaton
14	1	RG0101022	Back Mounting Connector	Bosch Rexroth

ITEM ID	PORT TYPE	DESCRIPTION	PORT SIZE
1	SAE O-ring	SAE SAE	SAE SAE
2	SAE O-ring	SAE SAE	SAE SAE
3	SAE O-ring	SAE SAE	SAE SAE
4	SAE O-ring	SAE SAE	SAE SAE

NET NAME	NET LIST	FUNCTION	9-SV1	9-SV2
NET-1	MC, C, 11-2			
NET-2	T, TA-2, 9-T			
NET-3	MP, P2, P1, TA-1, 9-P			
NET-4	MP, D, 11-1, 9-B			
NET-5	11-1, 9-B			
NET-6	11-1, 9-B			
NET-7	11-1, 9-B			

PROPERTY	VALUE
List Price	236
Rated Flow (gpm)	21
Pressure Loss @ Rated	145
Rated Pressure (psi)	5000
Cavity/Footprint/Interface	003
Malfunction Flow (gpm)	21
Voltage	230
Frequency	50
Bolt Shoulder Height (in)	1.4
Installation Torque (Slee 5.9 lb-ft/8 Nm	
Installation Torque (Alur 5.9 lb-ft/8 Nm	
Catalog Number	RE 2317/08.08

22. Selected Item Properties


The *Selected Item* tab page displays the properties assigned to the selected symbol in the drawing.
You can also add new accessories to the symbol and save it to the library.

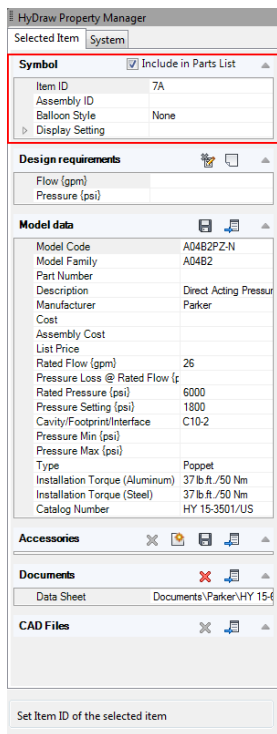
Select the symbol in the drawing.

The *Selected Item* tab page displays the following sections:

1. Symbol

The **Symbol** section displays the ID, balloon style, and various display settings of the symbol.

- Customize the balloon style to circle, oval, rectangle, rounded rectangle, hexagon or none of these.
- Show or Hide various display settings with the symbol on the drawing.
- Click  to expand and then select Hide or Show to hide or show the respective parameters.
- Select the checkbox on the caption bar to include the *Selected Item* properties in the respective component Parts List of the circuit.




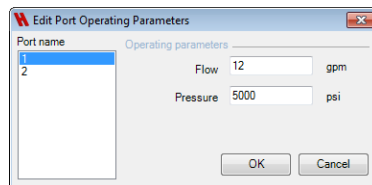
The HyDraw Property Manager dialog box, Selected Item tab, is shown. The **Symbol** section is highlighted with a red box. It includes a checkbox for 'Include in Parts List' (checked) and fields for 'Item ID' (7A), 'Assembly ID', 'Balloon Style' (None), and 'Display Setting'. Below this is the **Design requirements** section with fields for 'Flow (gpm)' and 'Pressure (psi)'. The **Model data** section contains a table of properties: Model Code (A04B2PZ-N), Model Family (A04B2), Part Number, Description (Direct Acting Pressure), Manufacturer (Parker), Cost, Assembly Cost, List Price, Rated Flow (gpm) (26), Pressure Loss @ Rated Flow (psi), Rated Pressure (psi) (6000), Pressure Setting (psi) (1800), Cavity/Footprint/Interface (C10-2), Pressure Min (psi), Pressure Max (psi), Type (Poppet), Installation Torque (Aluminum) (37 lb.ft./50 Nm), Installation Torque (Steel) (37 lb.ft./50 Nm), and Catalog Number (HY 15-3501/US). The **Accessories** section is empty. The **Documents** section shows 'Data Sheet' and 'Documents\Parker\HY 15-4'. The **CAD Files** section is empty. At the bottom, there is a field 'Set Item ID of the selected item'.

Selected Item tab page

2. Design Requirements


The **Design requirements** section enables you to search for the required components by specifying a design parameter and value, from the library.

- Type the value in the text box of the respective parameter.
- Click  on the **Design Requirements** caption bar to open Edit Port Operating Parameters.
- Specify separate flow and pressure for each port of a component.



The Edit Port Operating Parameters dialog box is shown. It has a 'Port name' list with '1' and '2'. The 'Operating parameters' section has 'Flow' set to '12' gpm and 'Pressure' set to '5000' psi. There are 'OK' and 'Cancel' buttons at the bottom.

Edit Port Operating Parameters

- Click  on Edit Design Note to add the design notes to the component.

3. Model Data

Displays the details of the component selected.


Select from Library

Select model data for a component using either the

Local database installed on the system

OR

Online database of FluidPowerTools.com

Click  on the Model Data caption bar to fetch the component from the library.

The Select from Library dialog box displays with the input data.

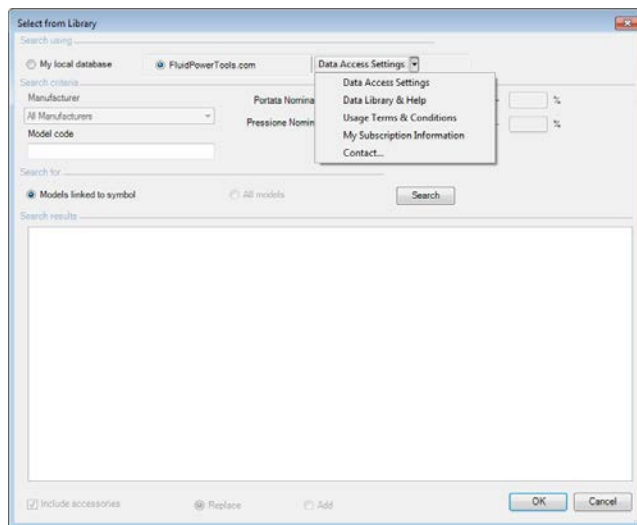
- Select the database to search, i.e.,
My local database or Fluidpowertools.com

*If the My local database option is selected,
the program searches the component in the local database of the user.*

*If the FluidPowerTools.com database option is selected,
the split button on the right is enabled,*

Data Access Settings.

- In the Data Access Settings, select **manufacturer database** to search for components.



Fetch from Library - Data Access Settings

*The Data Access Settings drop down provides other controls,
which includes:*

*Data Access Settings, Data library and Help topics, Usage terms and conditions,
My Subscriptions information, and Contact.*

- Click **Models linked to symbol** to display the component models linked to this symbol.
- Click **all models** to display all component models available to the component type of the symbol.
- Click the **Search** button to search for the component.
The search results display in the Search results pane.
- Click **OK**.

Add Accessories

You can add or replace accessories of the model code to the symbol by selecting an appropriate button.


- Select the **Include accessories** check box, and then select **Add**.
The linked accessories of the component model will be added to the selected model.

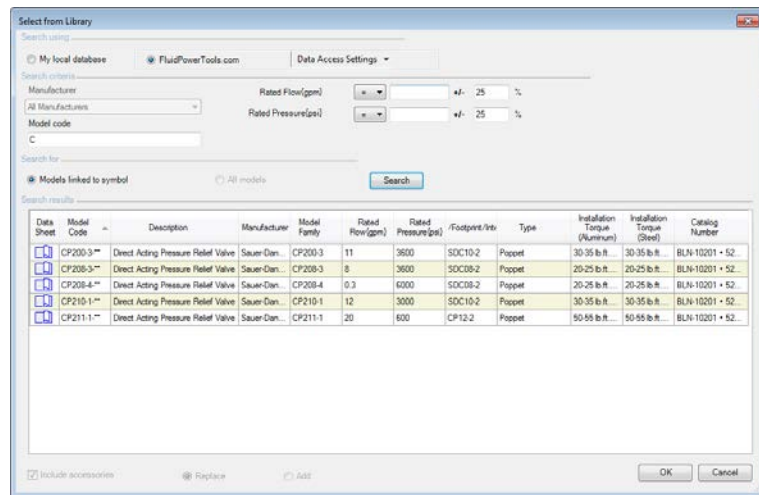
Replace Accessories

- Select the **Include accessories** check box, and then select **Replace**.
The linked accessories of the component model will be added to the selected model and all accessories linked previously will be delinked.

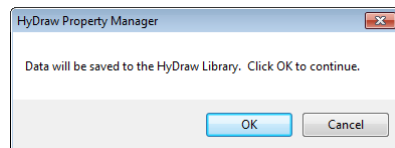
Saving Model Data into Library

You can save the designed component with customized data in the library.

- Click  on the Model Data caption bar to save custom details in the library.



Fetch from Library with Search results





Save to Library

4. Accessories

The Accessories section displays the details of accessories assigned with the item. This section also displays all documents and CAD files linked with the accessory.

Select from Library

You can fetch required accessories to your component from the library.

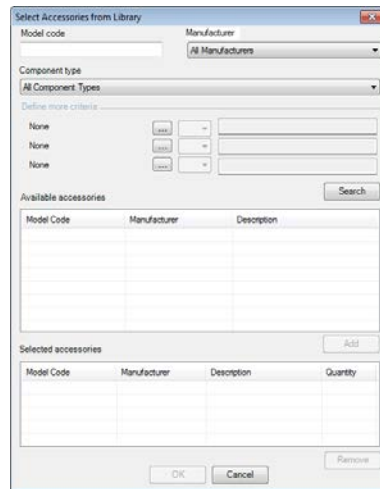
1. Click  on the Accessories caption bar.
The Select Accessories from Library dialog box displays.
2. Select the required manufacturer and component type.
3. To refine the search, type the Model Code, and then click **Search**.
All available accessories of the selected component type display in the Available accessories pane.
4. Define more criteria,
 - For precise search, define custom search parameters.
 - Click  to view the Select Property box, which displays common properties.
 - Select the property you want to assign.
 - Click OK.

5. Click Search.

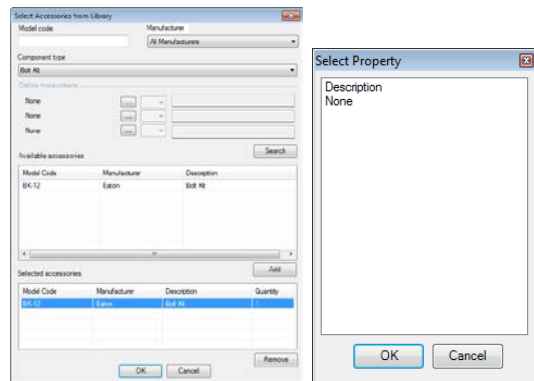
All available accessories of the selected component type display in the Available accessories pane.

6. Select the model code you want to add to your circuit.
7. Click **Add**.
The added model codes display in the Selected accessories pane.
8. Select the model code and click **Remove** to remove the selected model code from the Selected accessories pane.
9. Click **OK**.

All the selected accessories are added to the component and displayed in the Accessories pane on the Selected Item tab page.





Fetch Accessories from Library



Selected accessories


Add New Accessories

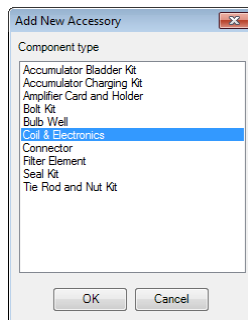
You can add new accessories to the selected item and save in the library.

1. Click  on the Accessories caption bar.
The Add New Accessory dialog box displays.
2. Select the appropriate component type you want to add.
3. Click **OK**.
The accessories are assigned to the component and displayed in the Accessories pane.
4. Click  to expand the newly added accessories menu.
5. Enter the required data in the appropriate text box.

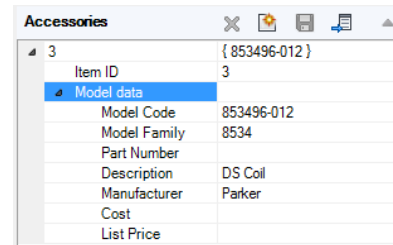
Save Accessories

You can save the newly added accessories to the component.

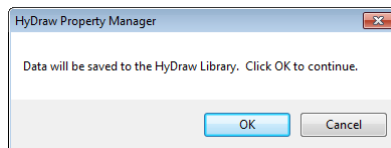
1. Click  on the Accessories caption bar.
The Save to Library dialog box displays.
2. Click **OK**.
The new accessories are saved.



Add New Accessory window




Accessories section

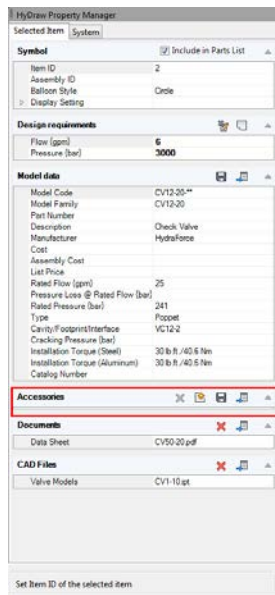


Save to Library dialog box

Delete Accessories

1. Select the accessory you want to remove.
2. Click  on the **Accessories** caption bar to delete the accessory.


The accessory is deleted from the component.




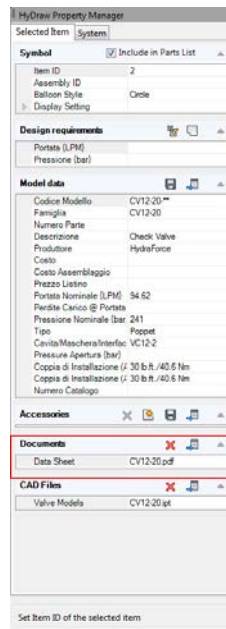
Accessories deleted from library

6. Documents

Documents section displays the documents linked with the selected component model. You can delete and link documents from library.

Click  on the **Documents** caption bar to delete the linked document.


Click  **Select from library** to link new document to the selected component model.




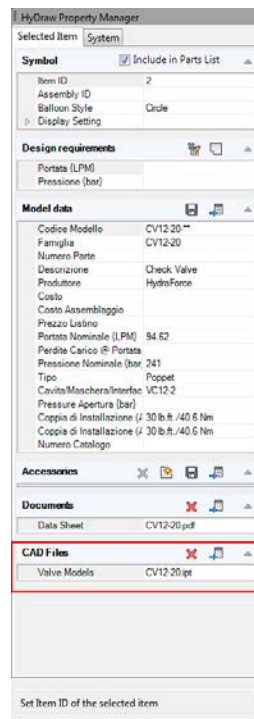
Documents Section

5. CAD Files

The CAD Files section displays the CAD files linked with the selected component model. You can delete and link CAD files from the library.

Click  on the **CAD Files** caption bar to delete the linked CAD files.

Click  **Select from library** to link new CAD files to the selected component model.



The HyDraw Property Manager dialog box is shown with the 'System' tab selected. It contains several sections: 'Symbol' with fields for Item ID (2), Assembly ID, Ballroom Style (Circle), and Display Setting; 'Design requirements' with fields for Portata (LPM) and Pressione (bar); 'Model data' with a table of technical specifications; 'Accessories' with a table of accessories; 'Documents' with a table of documents; and 'CAD Files' with a table of CAD files. The 'CAD Files' section is highlighted with a red border.

Model data	
Codice Modello	CV12-20
Famiglia	CV12-20
Numero Parte	
Descrizione	Check Valve
Produttore	HydraForce
Costo	
Costo Assemblaggio	
Prezzo Listino	
Portata Nominale (LPM)	94.62
Perdite Carico (R) Portata	
Pressione Nominale (bar)	241
Tipo	Poppet
Cavita/Maschera/Interfac	VC12-2
Pressure Apertura (bar)	
Coppia di Installazione (/- 30 lb.ft./40.6 Nm	
Coppia di Installazione (/- 30 lb.ft./40.6 Nm	
Numero Catalogo	

Accessories	

Documents	
Data Sheet	CV12-20.pdf

CAD Files	
Valve Models	CV12-20.gst

CAD File Section

23. System Properties

When you open a schematic in the HyDraw® CAD, the System tab page displays the assigned properties of the selected system in the drawing. Add new accessories to the system and save in the library.

1. Components

The Components section displays the model codes of all the components in the circuit.

Select the Item ID to highlight the corresponding component in the drawing.

2. External Ports

The External Ports section displays the ID and the size of all external ports in the circuit.

Select the Item ID to highlight the corresponding external port in the drawing.

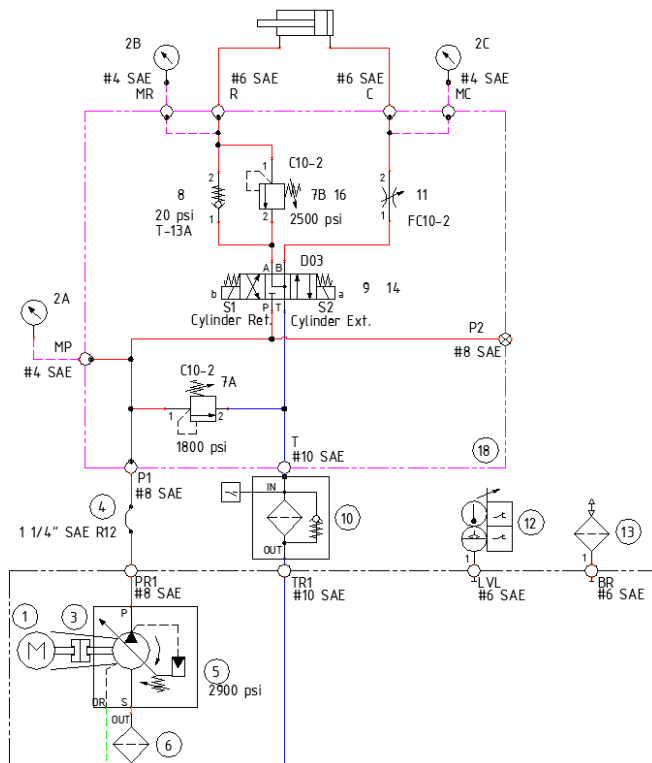
3. Envelopes

The Envelopes section displays the ID and the description of all envelopes in the circuit.

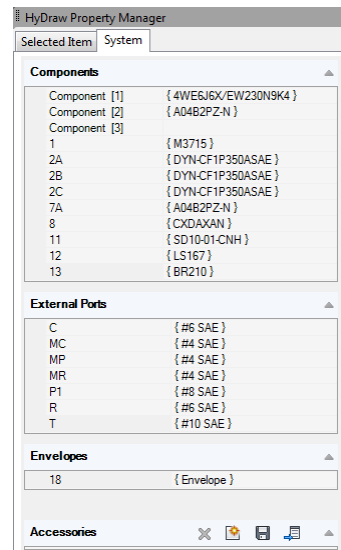
Select the Item ID to highlight the corresponding envelope in the drawing.

4. Accessories

The Accessories section displays the details of accessories assigned with the circuit.



Schematic



System tab page

24. Edit Properties

Edit various properties of a symbol, external port, envelope line, and connection line.

It displays the HyDraw® Property Manager, where the properties can be added and modified.



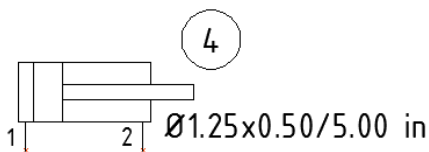
1. Click Home > **Edit** on the HyDraw CAD ribbon menu.

The HyDraw Property Manager window displays.

2. Edit the required properties of a symbol.
3. The Display Setting can display Multiple Properties, if already defined in the Library Manager.

Symbol		<input checked="" type="checkbox"/> Include in Parts List
Item ID	4	
Assembly ID		
Balloon Style	Circle	
Display Setting		
Cylinder Size	Show	
Port Size Ext	Show	
Port Size Ret	Show	
Accessory ID	Show	

HyDraw Property Manager - Display Settings



Cylinder displayed with multiple properties


HyDraw Property Manager	
Selected Item System	
Symbol <input checked="" type="checkbox"/> Include in Parts List	
Item ID	2
Assembly ID	
Balloon Style	Circle
Display Setting	
Design requirements	
Flow (gpm)	6
Pressure (bar)	3000
Model data	
Model Code	CV12-20-*
Model Family	CV12-20
Part Number	
Description	Check Valve
Manufacturer	HydraForce
Cost	
Assembly Cost	
List Price	
Rated Flow (gpm)	25
Pressure Loss @ Rated Flow (bar)	
Rated Pressure (bar)	241
Type	Poppet
Cavity/Footprint/Interface	VC12-2
Cracking Pressure (bar)	
Installation Torque (Steel)	30 lb.ft./40.6 Nm
Installation Torque (Aluminum)	30 lb.ft./40.6 Nm
Catalog Number	
Accessories	
Documents	
Data Sheet	CV50-20.pdf
CAD Files	
Valve Models	CV1-10.ipt

HyDraw Property Manager Window

25. Copy Properties

Copy component data, design requirements, accessories and linked data

properties from one component symbol to another component symbol of the same category. Also, copy the properties of external ports and envelope data.

1. Click  **Copy** on the HyDraw® CAD ribbon menu.

The Select Source Symbol prompt displays.

2. Select the source symbol.

The Select Destination Symbols prompt displays.

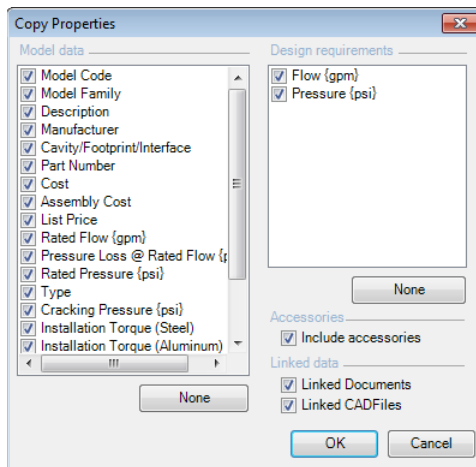
3. Select a single or multiple destination symbols.

4. After completion of selection, press the **Enter** key.

The Copy Property dialog box displays.

5. Select the required design requirements, if you want to copy from the **Design requirements** checklist box.
6. Select the **Include accessories** checkbox, if you want to copy the accessories to the destination symbol.
7. Select the **Include Linked Documents** and **Include Linked CAD Files** checkbox, if you want to copy the linked Documents and CAD Files to the destination symbol.
8. Click **OK**.


The properties are copied to the destination symbol(s).



Copy Properties

26. Refresh Properties

Update the property values of symbols or a system from HyDraw® Library.

1. Click  Refresh on the HyDraw CAD ribbon menu.

The Select symbols prompt displays.

2. Select a single or multiple symbols.
3. After completion of selection, press the **Enter** key.

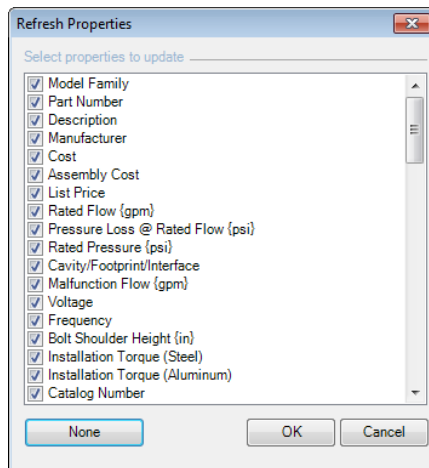
The Specify Items Included [Components/ Accessories/ Include All/ More Options] <Include All> prompt displays.

4. Specify the items to be refreshed.

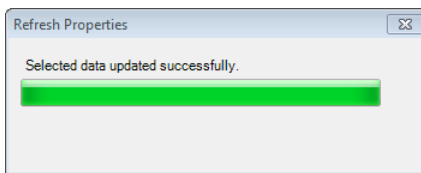
The Refresh Properties dialog box displays.

5. Select individual properties to Refresh or **Select All**.
6. Click **OK**.

The Update message box displays.




Refresh properties



Successful Update message

27. Update Property List

Update the properties of the components, external ports, connection lines and accessories from the HyDraw® Library.

1. Click  on the HyDraw CAD ribbon menu.
The Select symbols and connections prompt displays.
2. Select a single or multiple symbols, external ports, connection lines.
After completion of selection, press the **Enter** key.

The Specify Items Included [Components/ Accessories/ Include All/ More Options] <Include All> prompt displays.

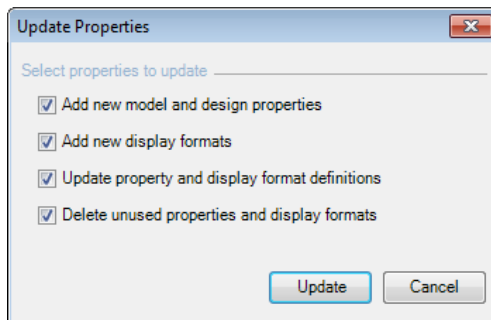
More Options further Prompts,

Include Components [Yes No] <Yes>.

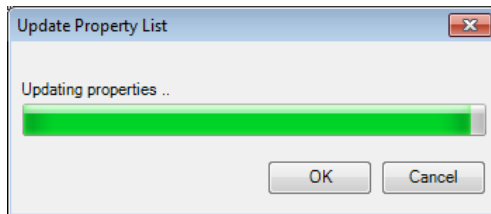
Include Component Accessories [Yes No] <Yes>.

Include System Accessories [Yes No] <Yes>.

3. Select the required option.
The Update Properties List dialog box displays.
4. Select the items to be included,
 - Add new model and design properties
 - Add new display formats
 - Update property and display format definitions
 - Delete unused properties and display formats
5. Click **Update**.
The Update Property List message box displays the status.
6. Click **OK** to apply and exit.



Update Properties List




Update Status

28. Show/Hide Properties

The properties toggle between display or hide in the drawing.



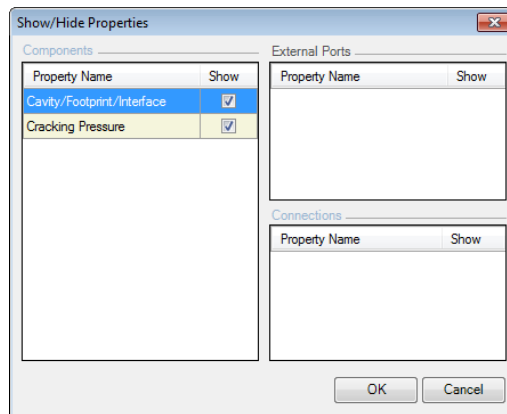
1. Click Home > Properties  on the HyDraw® CAD ribbon menu.

The Select Symbols and Connections prompt displays.

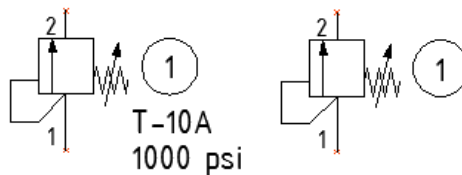
2. Select a single or multiple symbols, external ports, connection lines
After completion of selection, press the **Enter** key.

The Show/Hide Properties dialog box displays.

3. Select the properties in the Components, External Ports section and Connections section.
4. Click **OK** to apply and exit.



Show/Hide Property dialog box



Hiding a Property

29. Purge Properties

Clear the properties of a symbol.

1. Click Home > Edit > **Purge** on the HyDraw® CAD ribbon menu.

The Select Symbols prompt displays.

2. Select a single or multiple symbols.

After the completion of selection, press the **Enter** key.

The Specify items included [Components/Accessories/Include all/More options] <Include All> prompt displays.

3. Specify the item, properties that are to be purged and press the **Enter** key.

- a. Select Components/Accessories/Include All:

The Purge Properties dialog box displays.

➤ Select the properties to be purged.

➤ Click OK.

- b. Select More Options:

The Include components [Yes/No]: prompt displays.

Select Yes or No and press the Enter key.

The Include component accessories [Yes/No] : prompt displays.

Select Yes or No and press the Enter key.

The Include system accessories [Yes/No] : prompt displays.

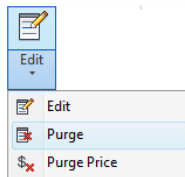
Select Yes or No and press the Enter key.

The Purge Properties dialog box displays.

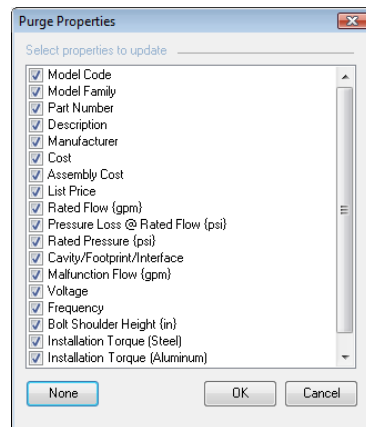
- c. Select the properties to be purged.

- d. Click OK.

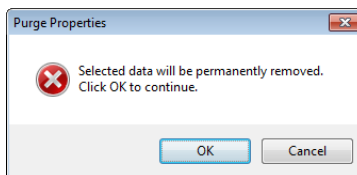
A warning message box displays



Purge Property Sub menu



Purge Properties dialog box



Warning message box

4. Click **OK** to continue
or
Click **Cancel** to exit.

The selected properties are purged.

HyDraw Property Manager

Selected Item: System

Symbol ☒ Include in Parts List

Item ID	1
Assembly ID	
Balloon Style	None
Display Setting	

Design requirements

Flow (gpm)	6
Pressure (psi)	4800

Model data

ModelCode	SD10-01-CNH
BaseModel	SD10-01
Description	Needle Valve
Manufacturer	Hydac
PartNumber	5461
Cost	
AssemblyCost	
ListPrice	
RatedFlow	42
PressureLossAtRatedFl	
RatedPressure	6000
ItemType	Poppet
CavityName	FC10-2
InstallationTorqueAlumi	29.5-37 lb.ft./40-50 Nm
InstallationTorqueSteel	29.5-37 lb.ft./40-50 Nm
CatalogNumber	

Accessories

2	{ SK325 }
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Documents

Data Sheet	SD10-01.pdf
------------	-------------

CAD Files

Valve Models	CBB LHN.ipt
--------------	-------------

HyDraw Property Manager before purge property

HyDraw Property Manager

Selected Item: System

Symbol ☒ Include in Parts List

Item ID	1
Assembly ID	
Balloon Style	None
Display Setting	

Design requirements

Flow (gpm)	6
Pressure (psi)	4800

Model data

ModelCode	
BaseModel	
Description	
Manufacturer	
PartNumber	
Cost	
AssemblyCost	
ListPrice	
RatedFlow	
PressureLossAtRatedFl	
RatedPressure	
ItemType	
CavityName	
InstallationTorqueAlumi	
InstallationTorqueSteel	
CatalogNumber	

Accessories

2	
---	--

Documents

Data Sheet	SD10-01.pdf
------------	-------------

CAD Files

Valve Models	CBB LHN.ipt
--------------	-------------

HyDraw Property Manager after purge property

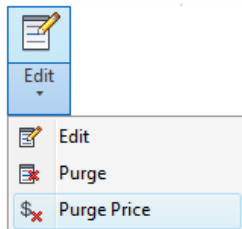
30. Purge Price Data

Remove price information from components in the schematic drawing.

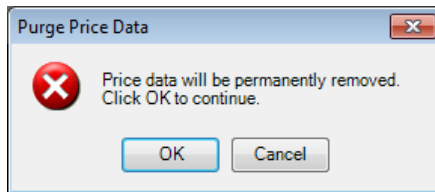
1. Click Home > Edit > **Purge Price Data** on the HyDraw® CAD ribbon menu.
The components in the schematic are selected automatically.
The Purge Price Data warning message box displays, indicating that the price data will be removed permanently from all the components in the drawing.
2. Click **OK**, if you want to continue.
On completion, prompts a message - Price data removed successfully.
3. Click **OK**.

Note:

Save the schematic with a different file name and/or location before removing price information for your convenience and future reference.



Purge Price sub menu



Purge Price Data warning box

Modify Symbols

The screenshot displays the HyDraw CAD700 software interface. The main window shows a hydraulic circuit diagram with various components like pumps, valves, and cylinders. The 'Modify Symbols' menu is open, listing 42 items to be modified. The items are organized into two tables.

ITEM ID	QTY	MODEL CODE	DESCRIPTION
1	1	M3 P75	Electr. Mot.
2	3	DYN-CF9P350ASAE	Pressure Ga.
3	1	D225M/SAEB	Motor/Pump
4	1	P24-20	Hose
5	1	PE060R006R20PA00N051A1J	Pump Variable
6	1	P30-100	Suction Strg
7	2	A0402PZ-N	Direct Actio
8	1	CKDAXAN	Check Valve
9	1	4WE6J6X/EW230N9K4	Direction Co
10	1	50A5105QEDPGG20	Filter
11	1	SD10-01-CNH	Needle Valv
12	1	LS 16 7	Floaf & Tem
13	1	BR210	Filter/Breat
14	1	R501019022	Black Hain

ITEM ID	PORT TYPE	DESCRPT
RR, C, LVL, R	SAE O-ring	#6 SAE
MC, MP, MR	SAE O-ring	#4 SAE
P1, P2, PR1	SAE O-ring	#8 SAE
T, TR1	SAE O-ring	#10 SAE

NET NAME	NET LIST
NET-1	ML, C, T1-2
NET-2	T, JA-2, 9-T
NET-3	MP, P2, P1, TA-1, 9-P
NET-4	MR, R, TB-1, 8-2
NET-5	T1-1, 9-B
NET-7	TB-2, 8-1, 9-A

The bottom right corner of the interface shows a title block with the following information:

VEST, Inc.
 VIRTUAL ENGINEERING SERVICES TEAM Proj. IN
 Cylinder Control
 HYDRAULIC
 1/2011

31. Move Symbol

Move a symbol from one point to another in the drawing.



1. Click Home > **Move** on the HyDraw® CAD ribbon menu.

The Select Symbol to Move prompt displays.

2. Select the symbol.

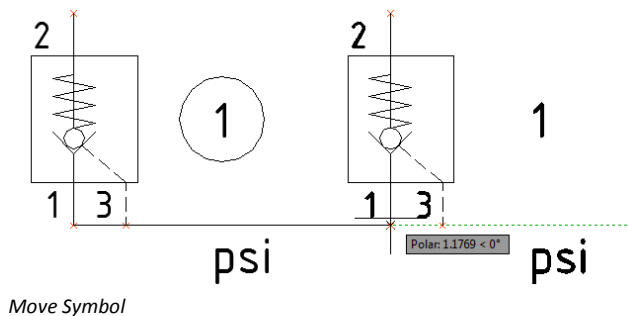
The Specify Base point or [Displacement] <Displacement> prompt displays.

3. Specify the base point of the symbol.

The Specify second point prompt displays.

4. Specify the second point.

The symbol is moved to the new location.



32. Align Symbols

Align multiple symbols with another symbol, horizontally or vertically, from left, right, or middle.

1. Click Home > **Align Symbols**  on the HyDraw® CAD ribbon menu.

The Select Symbols to Move prompt displays.

2. Select a single symbol or multiple symbols.
After completion of selection, press the **Enter** key.

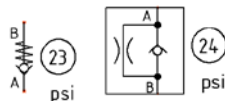
The Select Symbol to Align With prompt displays.

3. Select the symbol.

The Align [Tops/Middles/ Bottoms/ Lefts/ Centers/ Rights] prompt displays.

4. Select the required alignment and press the **Enter** key.

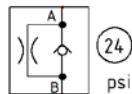
The symbols get aligned with the selected symbol accordingly.



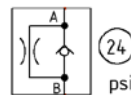
Symbols aligned from bottom



Symbols aligned from top



Symbols aligned from right



Symbols aligned from left

33. Rotate Symbols

Rotate a symbol, 90 degrees to its left or right.

The associated text is constrained to remain horizontal.

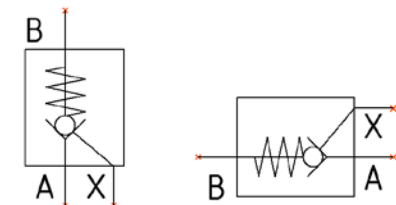
1. Rotate Left

1. Click Home > **Rotate Left**  on the HyDraw® CAD ribbon menu.

The Select Symbols prompt displays.

2. Select a single or multiple symbols.
After completion of selection, press the **Enter** key.

The symbol rotates 90 degrees to its left.



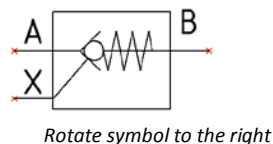
2. Rotate Right

1. Click Home > **Rotate Right**  on the HyDraw CAD ribbon menu.

The Select Symbols prompt displays.

2. Select a single or multiple symbols.
After completion of selection, press the **Enter** key.


The symbol rotates 90 degrees to its right.



34. Flip Symbols

Flip a symbol horizontally or vertically. The associated text is constrained to remain horizontal.

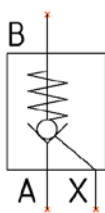
1. Flip Horizontal

1. Click Home >  **Flip Horizontal** from the Modify Symbol option on the HyDraw® CAD ribbon menu.

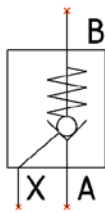
The Select Symbols command displays.

2. Select a single or multiple symbols.
After completion of selection, press the **Enter** key.

The symbol flips horizontally.




Symbol inserted in the drawing



Symbol after horizontal flip

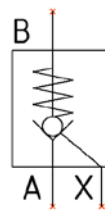
2. Flip Vertical

1. Click Home >  **Flip Vertical** from the Modify Symbol option on the HyDraw CAD ribbon menu.

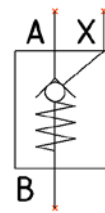
The Select Symbols command displays.

2. Select a single or multiple symbols.
After completion of selection, press the **Enter** key.

The symbol flips vertically.



Symbol inserted in the drawing



Symbol after vertical flip

35. Align Symbol Ports

Align ports of different symbols horizontally or vertically.

1. Click Home > **Align Symbol Ports**  on the HyDraw® CAD ribbon menu.
The Select Symbols Port to Move prompt displays.

2. Select a port by clicking on the red cross or the port name.
The Select Symbol Port to Align With prompt displays.

3. Select a port by clicking on the red cross or the port name.
The Align on [X-axis/ Y-axis] command displays on the command window.

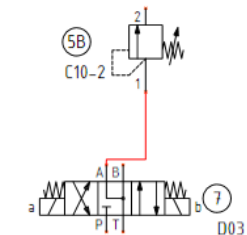
4. Enter the appropriate axis and press the **Enter** key.

The symbols are aligned with reference to their ports.

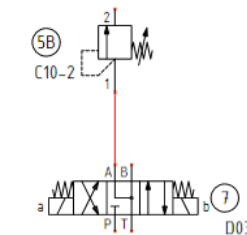
Note:

When aligning external ports (that are aligned with the envelope) to symbol ports, in some cases the envelope line may pass through the external ports.

In such cases, manually adjust the envelope line.

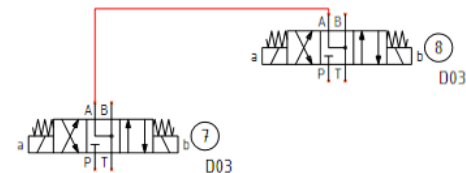


Before

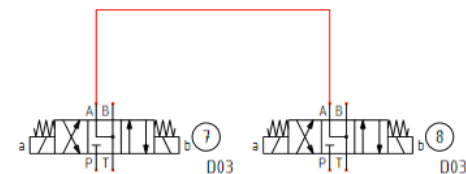


After

Symbol ports aligned vertically



Before



After

Symbol ports aligned horizontally

36. Align External Port Names

Align port names of all the selected ports horizontally or vertically along the envelope line.

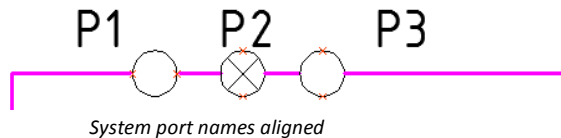
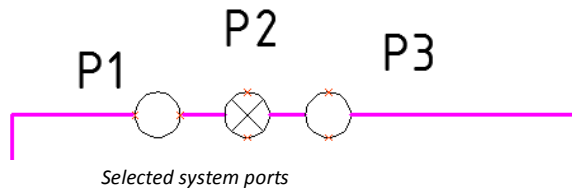
1. Click Home > **Align External Port Names**  on the HyDraw® CAD ribbon menu.

The Select System Ports prompt displays.

2. Select ports to align port names.
After completion of selection, press the **Enter** key.

The symbol-port names get aligned.

In this selection, the left and bottom port name is taken as reference and all other system port names are aligned in a single line parallel to the envelope.



37. Edit Symbol Port

*Edit the port name of the selected symbol in the drawing.
It does not affect the master symbol in the HyDraw® library.*


1. Click Home > **Edit Symbol Port**  on the HyDraw CAD ribbon menu.

The Select Symbol prompt displays.

2. Select the symbol port to be renamed.

The Edit Port dialog box displays.

3. Type the new name in the **Name** column and the optional **Other name** column.

4. To delete the port, click .

5. Select **Name/Other name** in the Display option.

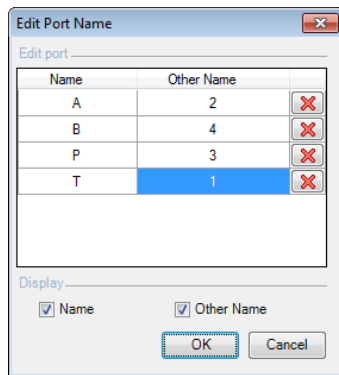
6. Click **OK**.

The name or the other name of the port displays with the symbol.

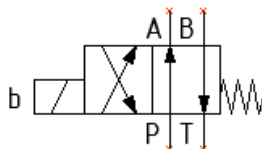
If both the names are selected, then dual port names are displayed.

Note:

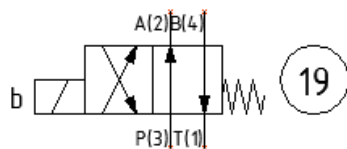
The changes affect only the symbol in the drawing and not the master symbol in the HyDraw Library.



Edit Port Name



Symbol with unedited ports



Symbol with Dual port names

38. Edit in Place

Edit the selected symbol in the drawing.

It does not affect the master symbol in the HyDraw® library.

1. Click Home > **Edit symbol**  on the HyDraw CAD ribbon menu.

The Select Symbol to Edit prompt displays.

2. Select the symbol from the drawing you want to edit.

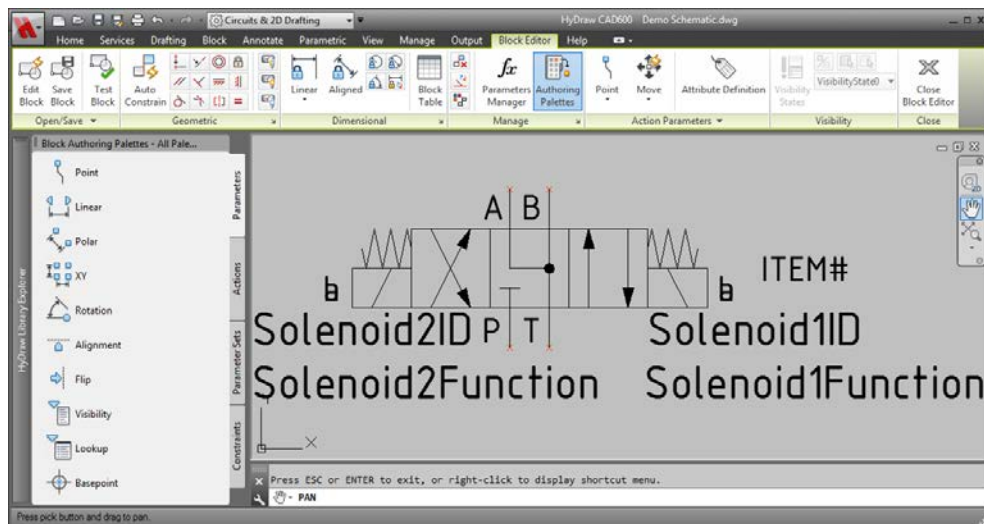
The symbol opens in the Block Editor.

This can be edited using the block Authoring Palettes.

3. Click **Close Block Editor** to close the window after you make the changes.

Note:


The changes affect only the symbol in the drawing and not the master symbol in the HyDraw Library.



Symbol opens in Block Editor window

39. Delete a Symbol

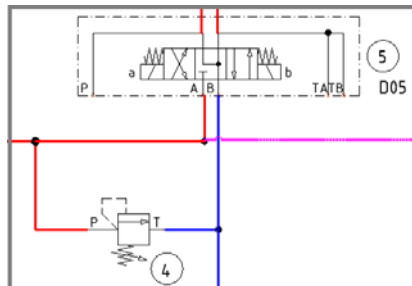
Delete a symbol from the drawing.

1. Click Home > **Delete**  on the HyDraw® CAD ribbon menu.

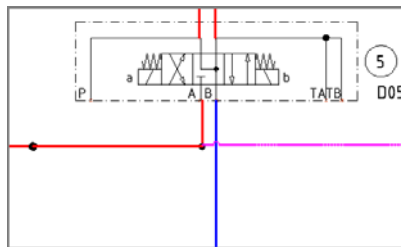
The Select Symbols prompt displays.

2. Select a single symbol or multiple symbols to delete.
After completion of selection, press the **Enter** key.

The selected symbols and the connections are deleted.



Circuit Before Deleting a Symbol



Circuit After Deleting a Symbol

40. Stack Symbols

Stack symbols horizontally or vertically.

1. Click Home > **Stack**  on the HyDraw® CAD ribbon menu.

The *Select Symbols to Stack* prompt displays.

2. Select multiple symbols to stack.
After completion of selection, press the **Enter** key.

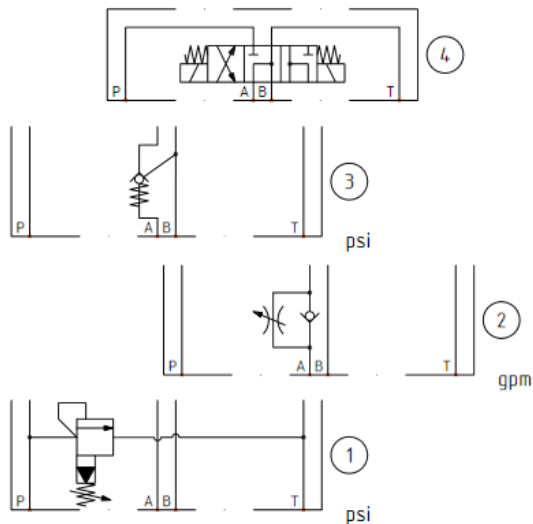
The *Stack direction [Up/Down/Right/Left]* <Up>:
prompt displays.

3. Select the direction.

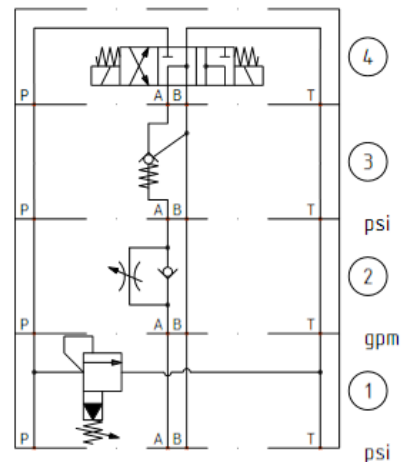
The symbols are stacked, accordingly.

Note:

- Port 'P' is the default alignment guide.
- If there is no 'P' port, then port 'X' is used (e.g. Slip-in cover).
In all other cases, Symbol Alignment box center is used to align the symbols.



Symbols to Stack



Symbols after Stacking

41. Show/Hide Port Names

Toggle between ON/OFF names of the ports in the drawing.

1. Click Home > **Show/Hide Port Name**  on the HyDraw® CAD ribbon menu.

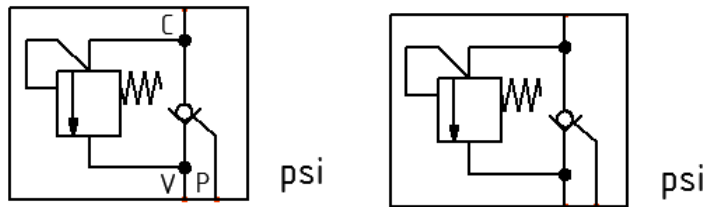
The Select Symbols prompt displays.

2. Select a single symbol or multiple symbols.
After completion of selection, press the **Enter** key.

Enter Option [Show/Hide] <Hide>: prompt displays.

3. Enter the required option.

- Show: The names of the ports in the symbols are shown.
- Hide: The names of the ports in the symbols are hidden.



Symbol before and after hiding port Name

42. Edit Solenoid Information

Edit the Solenoid ID of the selected symbol and function in the drawing.
It does not affect the master symbol in the HyDraw® library.

1. Select a valid HyDraw directional control valve symbol with the solenoid name.



2. Click **Solenoid Info** on the HyDraw CAD ribbon menu.

The Edit Solenoid Information dialog box displays.

3. In the Solenoid ID column, edit the **ID**, if already available, or enter a new ID.

The **Show** check box changes the visibility of the ID and function for the selected symbol.

4. In the Available functions section, enter the **Function** name and click the **Add** button.

The **Update** button allows editing the existing function.

5. Select the **solenoid name**.

6. Select the **function**.

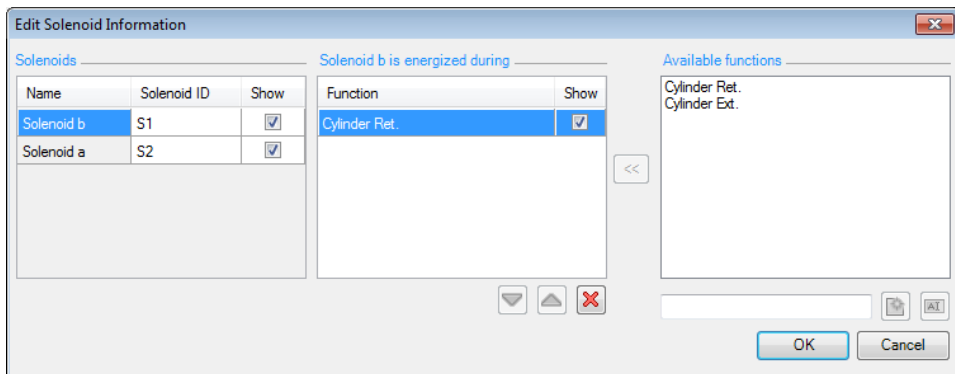
7. Click the **Add selected function** button.

The selected function is added to the selected solenoid name.

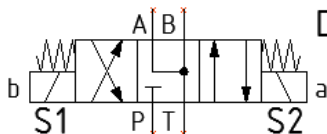
8. Click **OK** to close the window and to make changes.

Note:

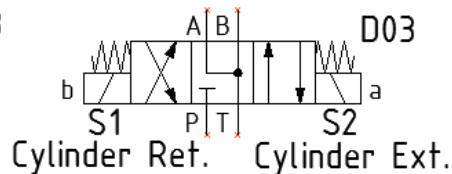
Changes affect only the symbol in the drawing and not the master symbol in the HyDraw Library.



Opened symbol stencil for edit

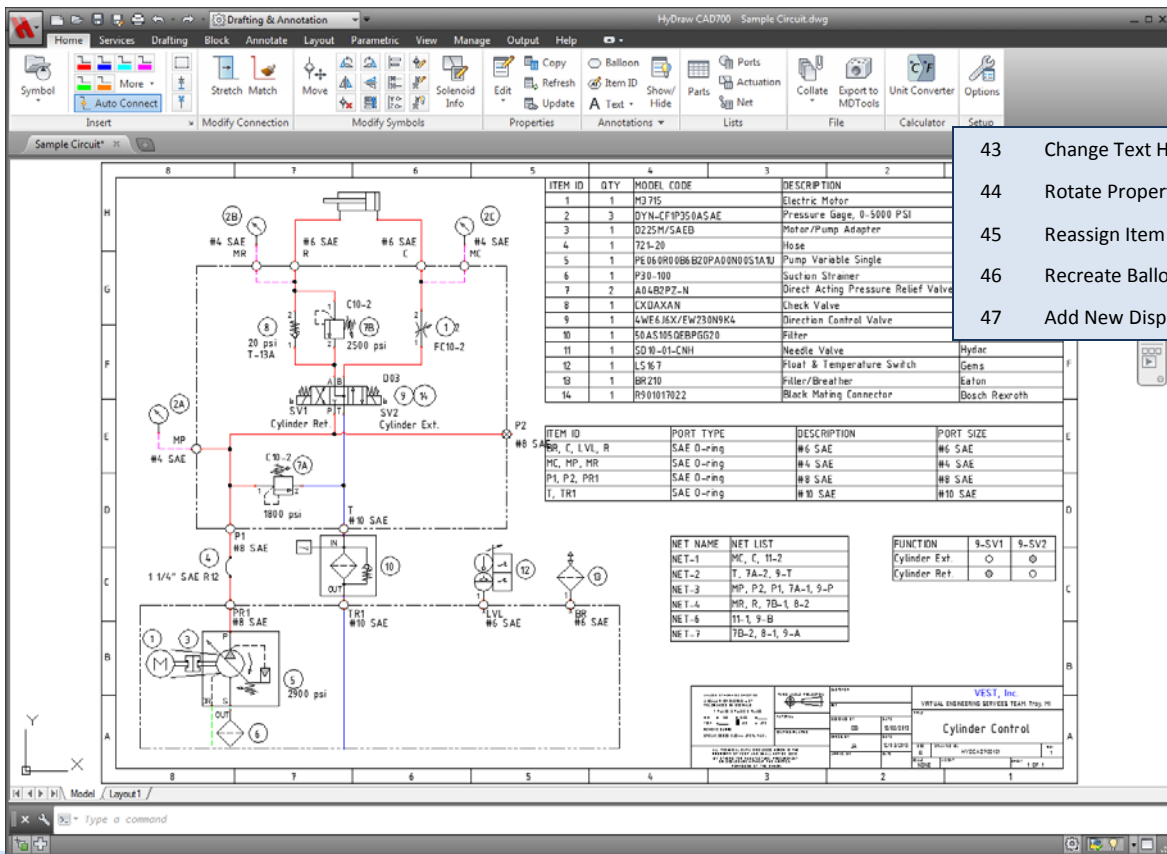


Symbol before edit



Symbol after edit

Annotations

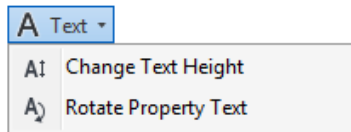


- | | |
|----|------------------------|
| 43 | Change Text Height |
| 44 | Rotate Property Text |
| 45 | Reassign Item ID |
| 46 | Recreate Balloons |
| 47 | Add New Display Format |

43. Change Text Height

Change the text height of the displayed Item ID and other parameters of the selected symbols.

1. Click Home > Text > **Change Text Height** on the HyDraw® CAD ribbon menu.



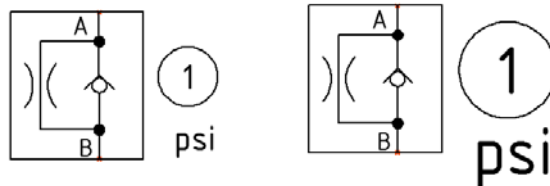
The Select Symbols and connections prompt displays on the command window.

2. Select a single symbol or multiple symbols, and connections.
After completion of selection, press the **Enter** key.

The Specify items to update [Item ID/ Property Text/ All] < All> prompt displays.

3. Enter the items to update and press the **Enter** key.

- Select Item ID/ Property Text/All:
The Change text height to <value>: prompt displays.
- Enter the text height value and press the **Enter** key.
The height of the text is changed.

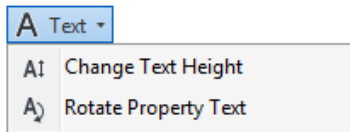


Text height changed (Before and After)

44. Rotate Property Text

Rotate the displayed text of the selected symbols and connections.

1. Click Home > Text > **Rotate Property Text** on the HyDraw® CAD ribbon menu.



The Select Symbols and Connections prompt displays.

2. Select a single symbol or multiple symbols and connections.
After completion of selection, press the **Enter** key.

The Rotate Property Text dialog box displays.

3. Select the property you want to rotate.

4. Click **Rotate Left** 

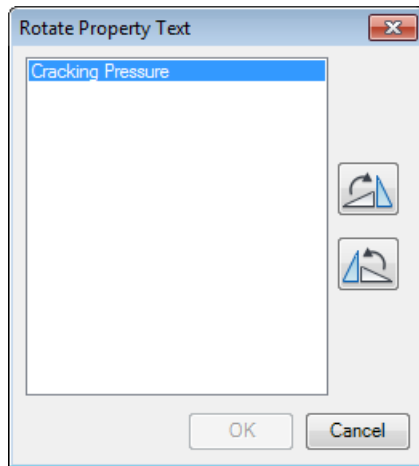
The Property Text rotates 90 degrees to its left.

5. Click **Rotate Right** 

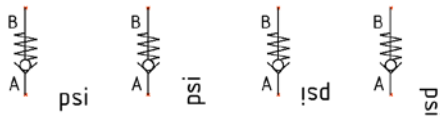
The Property Text rotates 90 degrees to its right.

6. Click **OK**.

The property of the text is rotated.




Rotate Property Text dialog box



Property text rotated

45. Reassign Item ID

Reassign the Item IDs of all symbols in the circuit after modification.

1. Click Home >  **Item ID** on the HyDraw® CAD ribbon menu.

The Select Symbols prompt displays.

2. Select a single symbol or multiple symbols.
After completion of selection, press the **Enter** key.

The Reassign Item ID dialog box displays.

3. Enter the starting value of the item ID.
4. Enter the Assembly ID.
5. Choose the Balloon shape.

Select the checkbox, if you want to use the current balloon type.

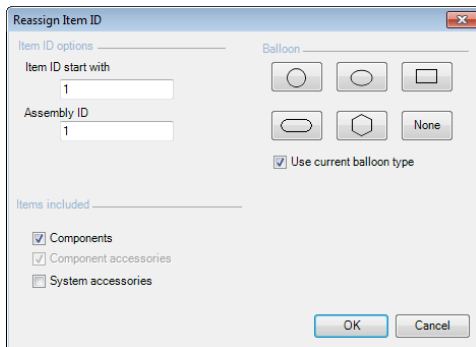
6. Select the appropriate option for Items included.

Select the Components checkbox to include all components.

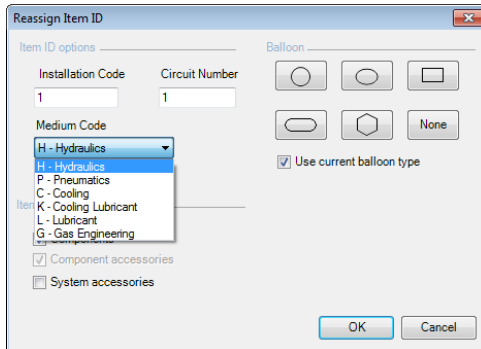
Select the Component accessories checkbox to include all component accessories.

Select the System accessories checkbox to include all system accessories.

7. Click **OK**.
8. For ISO 1219 Scheme, enter the **Installation Code**, **Circuit Number** and **Medium Code**.



Reassign Item ID




Reassign Item ID – ISO 1219 Scheme

46. Recreate Balloons

Update balloons of selected symbols or schematic.

The *Recreate* command affects the type of balloons.

1. Click Home > **Balloon**  **Balloon** on the HyDraw® CAD ribbon menu.

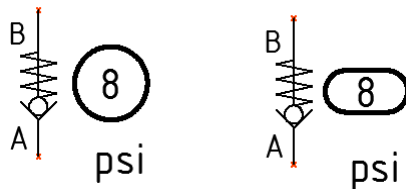
The *Select Symbols* prompt displays.

2. Select a single symbol or multiple symbols.
After completion of selection, press the **Enter** key.

The *Specify Balloon type* [Circle/Ellipse/Rectangle/Rounded rectangle/Hexagon/None/Use current balloon type] prompt displays.

3. Specify the balloon type.

4. Click **OK**.

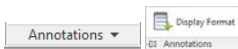


Changing Balloon from Circle to Rounded rectangle

47. Add New Display Format

Add a new display format of selected symbols and connections.

1. Click Home > Annotations > **Display Format** on the HyDraw[®] CAD ribbon menu.




The *Select Symbols and Connections* prompt displays.

2. Select a single symbol or multiple symbols or connections.

After completion of selection, press the **Enter** key.

The *Add New Display format* dialog box displays.

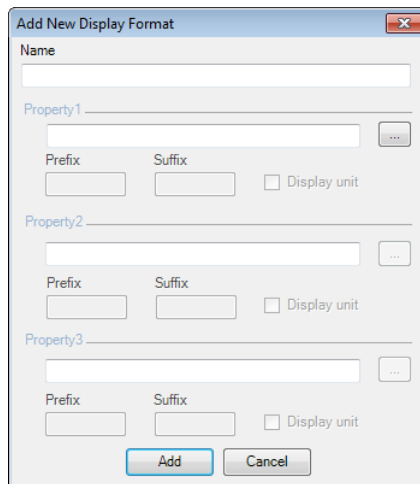
3. Enter the name of the display format.
4. Click  on Property1 section to select property to display in required format.

The *Select Property* dialog box displays.

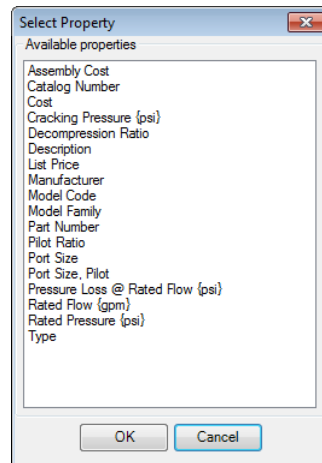
5. Select property and click **OK**.
6. Enter prefix and suffix values to display.
7. Select the Display Unit check box to display units.

Repeat step 4 to select more than one and up to three properties to display in this display format.

8. Click **Add**.



Add New Display Format dialog box



Select Property

48. Create and Insert Parts List

Create a list of components, envelope and accessories for a schematic.

1. Insert Parts List



1. Click Home > **Parts List** on the HyDraw® CAD ribbon menu.

The Select Symbols prompt displays.

2. Select a single or multiple symbols.
After completion of selection, press the **Enter** key.

The Create Parts List dialog box displays.

3. Select the items to be included,

Select the **Components** checkbox to include all components in the Parts list.

Select the **Component accessories** checkbox to include all component accessories in the Parts list.

Select the **System accessories** checkbox to include all system accessories in the Parts list.

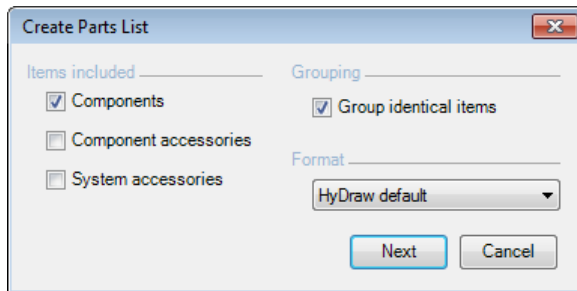
Select the **Group identical items** checkbox to group all the identical items in the Parts list.

Group identical items work only for 1A, 1B, 2A, 2B..., 1.1,1.2,2.1,2.2..., and 1-1,1-2,2-1,2-2... numbering scheme.

4. Select the required **format**.



The default format is applied, if nothing is selected.


5. Click **Next** to display the Parts List dialog box.



Create Parts List dialog box

The Create Parts List dialog box displays detail of the parts properties.

6. Click  or  to move the selected item row up or down, respectively.

7. Click  to delete the selected item from the list.

8. Click **Insert to Drawing** to insert the Parts list as a separate list in the drawing.

Select an area to create Parts List. Specify first corner: prompt displays.

9. Specify the first corner.

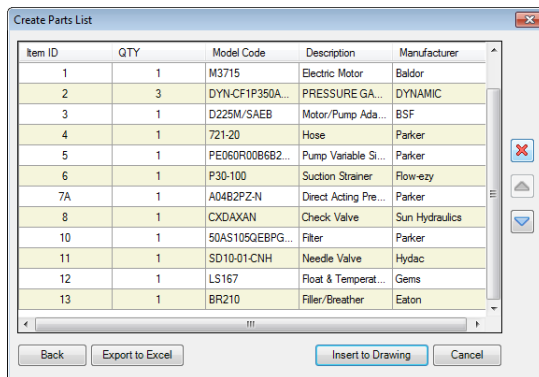
The Specify opposite corner: prompt displays.

10. Specify the opposite corner.

The Parts list is inserted into the drawing in a tabular form.

11. To save the Parts list as an Excel sheet, click **Export to Excel**.

The Parts List is saved in the Excel format.



Create Parts List dialog box

ITEM ID	QTY	MODEL CODE	DESCRIPTION	MANUFACTURER
1	1	M3715	Electric Motor	Baldor
2	3	DYN-CF1P350ASAE	Pressure Gage, 0-5000 PSI	DYNAMIC
3	1	D225M/SAEB	Motor/Pump Adapter	BSF
4	1	721-20	Hose	Parker
5	1	PE060R00B6B20PA00N00S1A1U	Pump Variable Single	Parker
6	1	P30-100	Suction Strainer	Flow-ezy
7	2	A04B2PZ-N	Direct Acting Pressure Relief Valve	Parker
8	1	CXDAXAN	Check Valve	Sun Hydraulics
9	1	4WE6J6X/EW230N9K4	Direction Control Valve	Bosch Rexroth
10	1	50AS105QEBPGG20	Filter	Parker
11	1	SD10-01-CNH	Needle Valve	Hydac
12	1	LS167	Float & Temperature Switch	Gems
13	1	BR210	Filler/Breather	Eaton
14	1	R901017022	Black Mating Connector	Bosch Rexroth


Parts List inserted in the drawing

2. Customize Parts List Format


1. Click Home> **Options...** on the HyDraw® CAD ribbon menu.
2. Click the **Parts List** tab.

The Parts List formatting box displays inside the tab.

3. To rename a selected format,

type the new name in the text box and click .

4. To add a new format,

type the new name in the text box and click .

5. To delete a selected format, click .

*The **Configure Columns** section enables to edit Display Name, Alignment, and Width of the columns.*

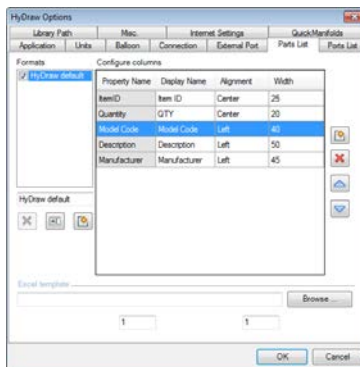
6. Click **Select Columns**.

The Select Parts List Columns dialog box displays.

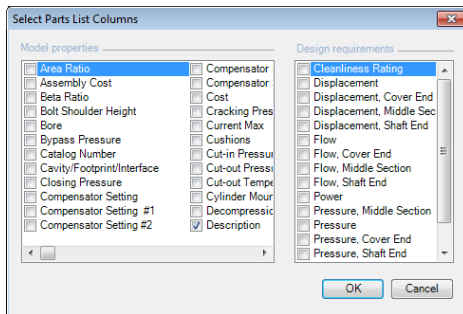
7. Select the required Model properties or Design requirements checkbox.
8. Click **Browse** and select the Excel template.
9. Set the Start Column and the Start Row of the Parts list to be inserted into the Excel template.
10. Click **OK**.

The properties of the selected items are displayed in the Parts List formatting box in the Configure columns section.

Same properties are displayed in the tabular form Parts list, when creating Parts list in the drawing.



HyDraw Options: Parts List







Select Parts List Columns dialog box

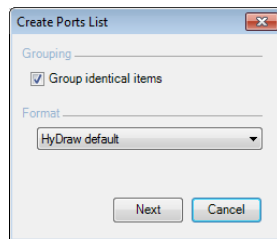
49. Create and Insert Ports List

Create a list of external ports used in the circuit.

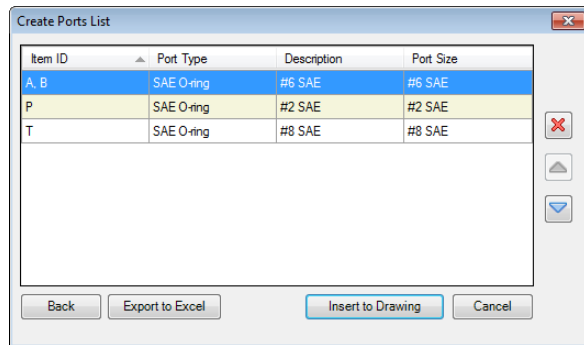
You can insert this list in the drawing. The tabular list exhibits details about the external ports.

1. Insert Ports List

1. Click **Home > Ports List**  on the HyDraw® CAD ribbon menu.
The Select Ports prompt displays.
2. Select a single or multiple ports. After the completion of selection, press the **Enter** key.
The Create Ports List dialog box displays.
3. Select the **Group identical items** checkbox to group all identical items in the Ports list.
Group identical items works only for 1A, 1B, 2A, 2B..., 1.1,1.2,2.1,2.2..., and 1-1,1-2,2-1,2-2... numbering scheme.
4. Select the required **format**. If no format is selected, then the default format is applied.
5. Click **Next** to display the Create Ports List dialog box.
The Create Ports List dialog box displays the details of the port properties.
6. Click  or  to move the selected item row up or down, respectively.
7. Click  to delete the selected port from the list.
8. Click **Insert to Drawing** to insert the Ports list as a separate list in the drawing.
Select an area to create the Ports List. Specify first corner: prompt displays.
9. Specify the first corner.
The Specify opposite corner: prompt displays.
10. Specify the opposite corner.
The Ports list is inserted into the drawing in a tabular form.
11. To save the Ports list as an Excel sheet, click **Export to Excel**.
The Ports List is saved in the Excel format.



Create Ports List dialog box



Create Ports List

ITEM ID	PORT TYPE	DESCRIPTION	PORT SIZE
A, B	SAE O-ring	#6 SAE	#6 SAE
P	SAE O-ring	#2 SAE	#2 SAE
T	SAE O-ring	#8 SAE	#8 SAE


Ports List in the drawing

2. Customize Ports List Format


1. Click Home> **Options...** on the HyDraw® CAD ribbon menu.
2. Click the **Ports List** tab.

The Ports list formatting box displays inside the tab.

3. To rename a selected format,

type the new name in the textbox and click .

4. To add a new format,

type the new name in the textbox and click .

5. To delete a selected format, click .

*The **Configure Columns** section enables editing of the Display Name, Alignment, and Width of the columns.*

6. Click .

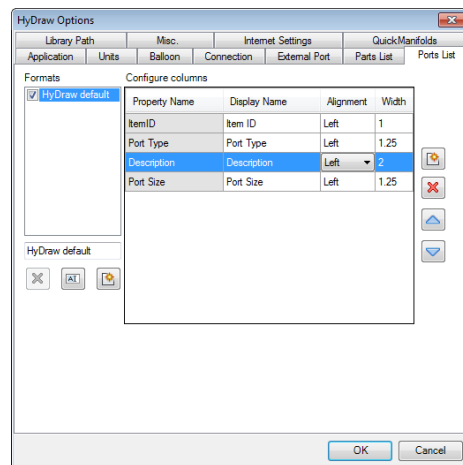
The Select Ports List columns dialog box displays.

7. Select the required properties.

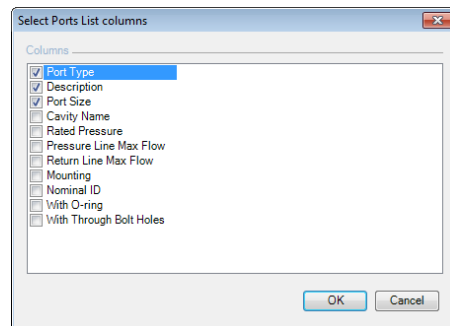
8. Click **OK**.

The properties of the selected item are displayed in the Ports List formatting box in the Configure columns section.

Same properties are displayed in the tabular form Ports list, when creating the Ports list in the drawing.








Ports List tab

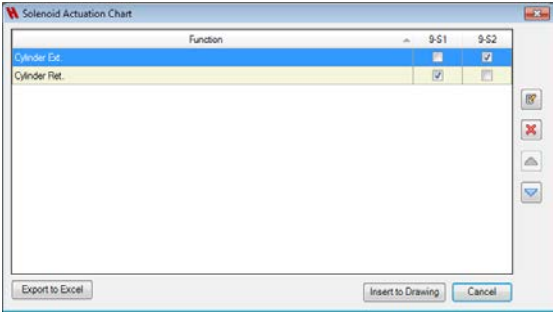


Select Ports List columns

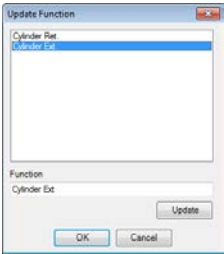
50. Create Solenoid Actuation Chart

Insert the Solenoid Actuation chart in the drawing.





1. Click Home > **Actuation**  on the HyDraw® CAD ribbon menu.
The Select Symbols prompt displays.
2. Select a single or multiple symbols. After the completion of selection, press the **Enter** key.
The Use Item ID [Yes No] <Yes> prompt displays.
3. Press **Enter**.
The Solenoid Actuation Chart displays Function, Item ID-Solenoid ID, if applicable.
4. Click **Back** to change the selection.
5. Click the **Update**  button to update the function name.
The Update Function dialog box displays.
 - Select the function to update.
 - Rename the function.
 - Click **Update**.
 - Click **OK** to display the changes in the Solenoid Actuation chart.
6. Click  or  to move the selected item one row up or one row down, respectively.
7. Click  to delete the selected function from the list.
8. Click **Export to Excel** to save the Solenoid Actuation chart as an Excel file (.xls or .xlsx).
9. Click **Insert to Drawing** to insert the Solenoid Actuation chart into the drawing.



Solenoid Actuation Chart – Grid View






Update Function

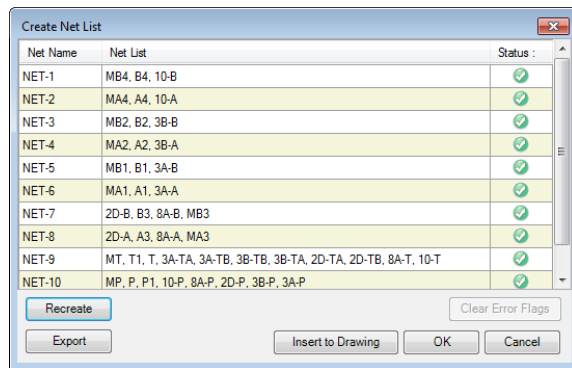
FUNCTION	9-S1	9-S2
Cylinder Ext.		
Cylinder Ret.		

Solenoid Actuation Chart

51. Create and Insert Net List

Create a list of networks (Net List) of components and external ports in the circuit.
You can insert the Net list in the drawing. The tabular list exhibits details about the networks.

- Click Home > **Net List**  on the HyDraw® CAD ribbon menu.
The Select Symbols and Connections prompt displays.
- Select symbols and connections. After completion of selection, press the **Enter** key.
The Create Net List box displays net name with corresponding net items and status.
The Status column shows the accounted nets with  and amended nets with  indicating that the nets are amended and require recreation.
By selecting a net on the Status column, the respective net is shown as hidden in the drawing. (In case of hidden connection lines at low zoom level, the hidden preview may not be visible. If the connection is not correct, red dots appear along the connection points.)
- Click **Clear Error Flags** to remove the error flags from the drawing.
- Click **Recreate** to return to create the Net list.
- Click **Export** to save the Net list as an Excel file (.xls or .xlsx).
- Click **Insert to Drawing** to insert the Net list in the drawing.
- Select an area to create the Net list.
The Specify first corner prompt displays.
- Specify the first corner.
The Specify opposite corner: prompt displays.
- Specify the opposite corner.
The Net list is inserted into the drawing.
- Click **OK** to exit.
- Click **Cancel** to cancel the Net list creation.



Create Net List

NET NAME	NET LIST
NET-1	MB4, B4, 10-B
NET-2	MA4, A4, 10-A
NET-3	MB2, B2, 3B-B
NET-4	MA2, A2, 3B-A
NET-5	MB1, B1, 3A-B
NET-6	MA1, A1, 3A-A
NET-7	2D-B, B3, 8A-B, MB3
NET-8	2D-A, A3, 8A-A, MA3
NET-9	MT, T1, T, 3A-TA, 3A-TB, 3B-TB, 3B-TA, 2D-TA, 2D-TB, 8A-T, 10-T
NET-10	MP, P, P1, 10-P, 8A-P, 2D-P, 3B-P, 3A-P
NET-11	ML, L, L1, 8A-Y

Net List

Note: PTO

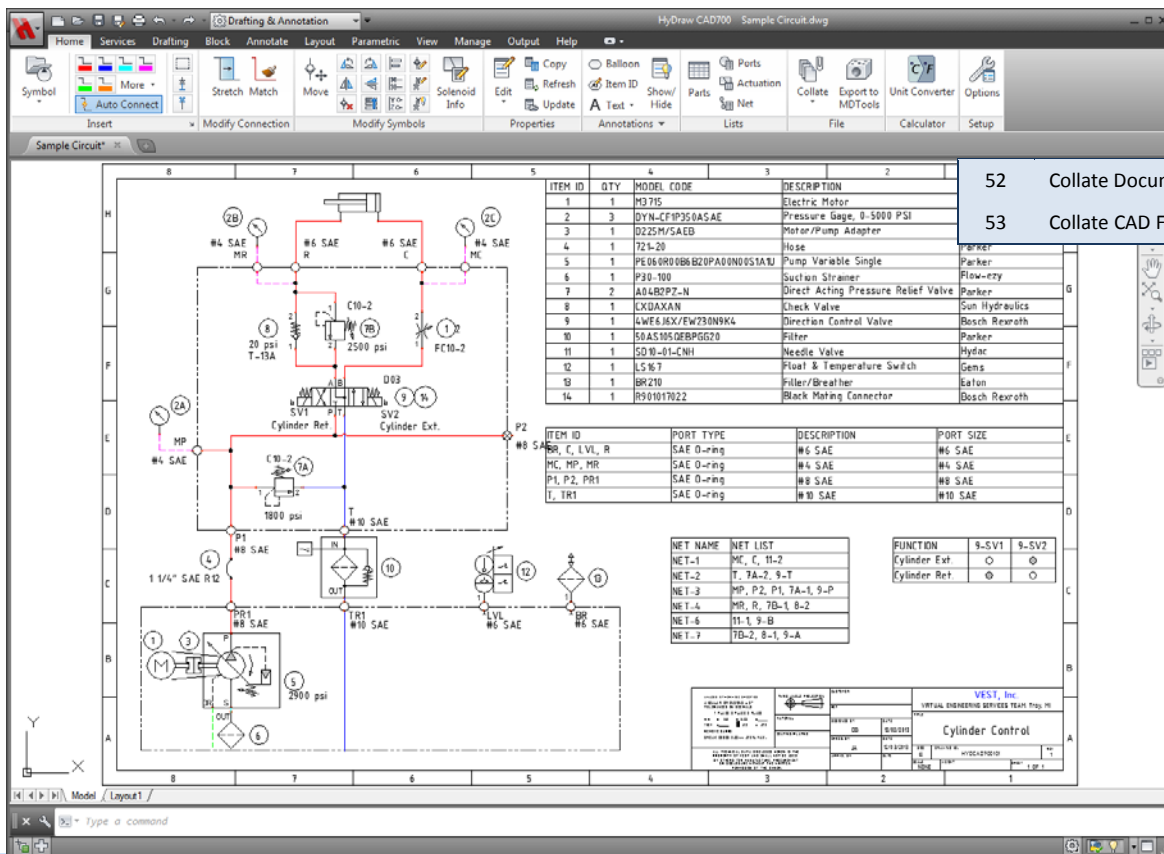
Note:

The individual symbols of Slip-Cartridge valve cover and Insert are combined with “&” and treated as a single entity, when creating the Net list.

CAUTION!

- Do not create more than one connection to the connection points. This may result in an incorrect Net list.
- If **OK** is not pressed after net renaming, the corrections will be lost on recreation, with default net naming style.

Collate Files




52 Collate Documents

53 Collate CAD Files

52. Collate Documents

Save documents linked to components, component accessories, and system accessories in the user-specified location.

1. Click Home > **Collate Documents**  from the Collate option on the HyDraw® CAD ribbon menu.

The Collate Documents dialog box displays.

The Select Symbols prompt displays.

2. Select a single symbol or multiple symbols and then press the **Enter** key.

The Specify items included [Components/Accessories/Include all/More options] < Include All> prompt displays.

3. Specify the item and press the **Enter** key.

- a. Select Components/Accessories/Include All:

The Collate Documents dialog box displays.

- b. Select the documents to be collated.

- c. Click **OK**.

- d. Select More Options:

The Include components [Yes/No]: prompt displays.

- e. Enter Yes or No and press the Enter key.

The Include component accessories [Yes/No]: prompt displays.

- f. Enter Yes or No and press the Enter key.

The Include system accessories [Yes/No] : prompt displays.

- g. Enter Yes or No and press the Enter key.

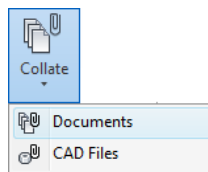
The Collate Documents dialog box displays.

- h. Select the documents to be collated.

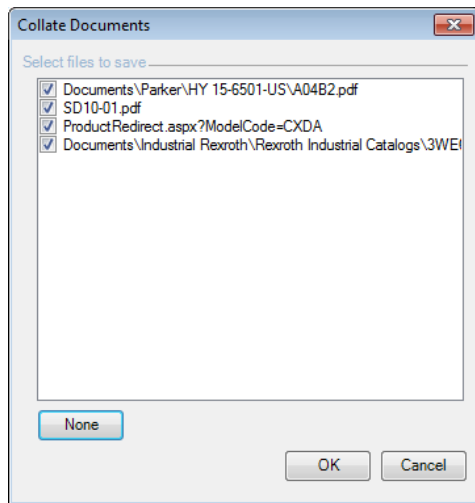
- i. Click **OK**.

The Browse For Folder dialog box displays.

4. Select the appropriate folder or click **Make New Folder** to create a new folder at the appropriate location for saving documents.




Collate Documents dialog box

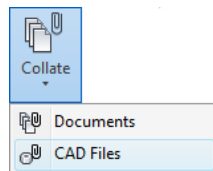


Collate Documents: save files

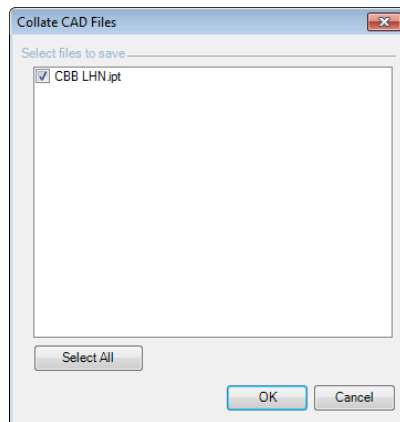
53. Collate CAD Files

Save the CAD files linked to the component, component accessories, and system accessories in the user-specified location.

1. Click Home > **Collate CAD Files**  from the Collate option on the HyDraw[®] CAD ribbon menu.
The Select Symbols prompt displays.
2. Select a single symbol or multiple symbols and press the **Enter** key.
The Specify items included [Components/Accessories/Include all/More options] <Include All> prompt displays.
3. Specify the item and press the **Enter** key.
 - a. Select Components/Accessories/Include All:
The Collate CAD Files dialog box displays.
 - b. Select the CAD Files to be collated.
 - c. Click **OK**.
 - d. Select More Options:
The Include components [Yes/No]: prompt displays.
 - e. Enter Yes or No and press the Enter key.
The Include component accessories [Yes/No]: prompt displays.
 - f. Enter Yes or No and press the Enter key.
The Include system accessories [Yes/No] : prompt displays.
 - g. Enter Yes or No and press the Enter key.
The Collate CAD Files dialog box displays.
 - h. Select the CAD files to be collated.
 - i. Click OK.
4. Select the appropriate folder or click **Make New Folder** to create a new folder in the appropriate location for saving CAD files.



Collate CAD Files dialog box



Collate CAD Files: Save Files

Calculator

HyDraw CAD700 Sample Circuit.dwg

Unit Converter

Convert Pressure

From: Value To: Value

Units

atmospheres [atm]
centimeters of mercury (0°C)
dynes/square centimeter [dyn/cm²]
feet of water (4°C)
feet of water (50°F)
inch of mercury (32°F)
inch of mercury (50°F)
inch of water (50°F)
inches of water (4°C)
kilograms/square centimeter [kgs/cm²]
kilograms/square meter [kgs/m²]
kilograms/square millimeter [kgs/mm²]
kilopascal [kpa]
megapascal [Mpa]
micobar [ubar]
millibar [mbar]
millimeters of mercury (0°C)
pascal [pa]
pounds/square feet [lb./ft.²]
pounds/square inch [psi]

Unit Category

Acceleration
Angle
Area
Current
Density
Dynamic Viscosity
Energy
Flow
Force
Frequency
Kinematic Viscosity
Length
Mass & Weight
Power
Pressure
Speed
Temperature
Time
Torque
Volume
Volumetric Displacement

NET NAME NET LIST

NET-1 MC, C, 11-2
NET-2 T, 7A-2, 9-T
NET-3 MP, P2, P1, 7A-1, 9-P
NET-4 MR, R, 7B-1, 8-2
NET-5 11-1, 9-B
NET-6 7B-2, 8-1, 9-A

FUNCTION 9-SV1 9-SV2
Cylinder Ext. ☐ ☐
Cylinder Ret. ☐ ☐

VEST, Inc.
VIRTUAL ENGINEERING SERVICES TEAM 700 70
Cylinder Control

Model / Layout1

Type a command

54 Unit Converter

54. Unit Converter

Convert value of any unit category from any unit to the other.

1. Click Home > **Unit Converter** from the Calculator option on the HyDraw® CAD ribbon menu.

The Unit Converter dialog box displays.

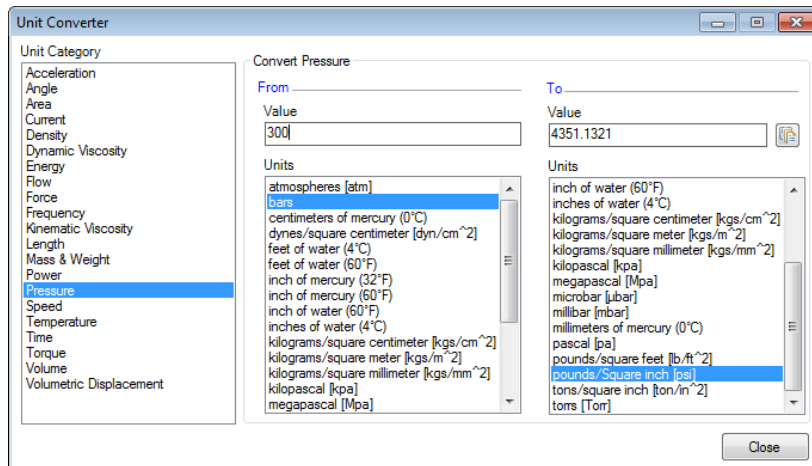
2. Select a unit category.
3. Select the units system in **From** and **To** Unit list box, per requirement.
4. Specify the unit value in **From** text box.

*Converted units value appears in **To** text box in the desired unit system.*

5. Click  to copy the **To** value to the clipboard.



HyDraw Unit Converter



Unit Converter Dialog Box

MDTools Interface

MDTools HyDraw Interface

C:\ExportToMDTools.xml Browse...

Cavity Browser **Connectivity Browser**

Demo Schematic

- 11
- 7A
- 7B
- 9
- A
- B
- P
- T
- C
- MC
- MP
- MR
- P1
- P2
- R

Cavity Information

Component ID: 8

Cavity Name: Sun T-13A

Cavity Type: Cartridge Valve Cavity

Comments: Sun Hydraulics T-13A (Inch), Rev.L

Net Information

Port 1 Net Name: NET-7

Port 2 Net Name: NET-4

☐ Edit Net Name

Update

Insert Cavity OK Cancel <<

HyDraw CAD700 - Sample Circuit.dwg

Parametric View Manage Output Help

Modify Symbols Properties Annotations Lists Actuation Net Collate Export to MDTools File Calculator Setup

ITEM ID	QTY	MODEL CODE	DESCRIPTION	MANUFACTURER
1	1	M3 715	Electric Motor	Baldor
2	3	DYN-CF1P350ASAE	Pressure Gauge, 0-5000 PSI	DYNAMIC
3	1	D225M/SAEB	Motor/Pump Adapter	DSF
4	1	T21-20	Hose	
5	1	PE060R08BZ0PA00N051A1U	Pump Variable Single	
6	1	P30-100	Suction Strainer	
7	2	A04RPP2-N	Direct Acting Pressure Relief Valve	Parker
8	1	LXDAKAN	Check Valve	Sun Hydraulics
9	1	4WFL6JX/FW730NPK4	Directional Control Valve	Bosch Rexroth
10	1	5AAS05DERPGG20	Filter	Parker
11	1	SD10-61-CN1	Needle Valve	Hydax
12	1	LS167	Float & Temperature Switch	Gems
13	1	BR210	Filler/Breather	Eaton
14	1	R301017022	Black Mating Connector	Bosch Rexroth

ITEM ID	PORT TYPE	DESCRIPTION	PORT SIZE
MR, C, LVL, R	SAE O-ring	#6 SAE	#6 SAE
MC, MP, MR	SAE O-ring	#4 SAE	#4 SAE
P1, P2, PR1	SAE O-ring	#8 SAE	#8 SAE
T, TR1	SAE O-ring	#10 SAE	#10 SAE

NET NAME	NET LIST	FUNCTION	9-SV1	9-SV2
NET-1	MC, C, 11-2	Cylinder Ext.	<input type="radio"/>	<input type="radio"/>
NET-2	T, 7A-2, 9-T	Cylinder Ret.	<input type="radio"/>	<input type="radio"/>
NET-3	MP, P2, P1, 7A-1, 9-P			
NET-4	MR, R, 7B-1, 8-2			
NET-6	11-1, 9-B			
NET-7	7B-2, 8-1, 9-A			

VEST, Inc.

Cylinder Control

Model / Layout 1

Type a command

55 Export to MDTools

55. Export to MDTools

Export a HyDraw® CAD created circuit as an XML, which can be readily opened in MDTools® for designing a manifold.

1. Click Home > **Export to MDTools** on the HyDraw CAD ribbon menu.

The Select Symbols and Connections prompt displays.

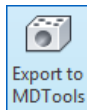
2. Select symbols and connections from the drawing.
After completion of selection, press the **Enter** key.

The Save As dialog box displays.

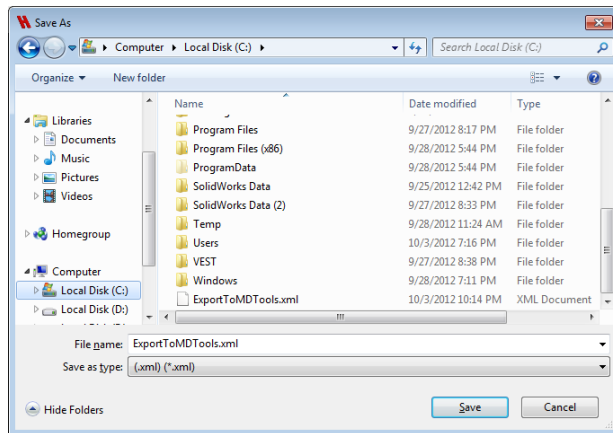
3. Save the resulting XML file at the desired location.

Note:

Information about CAD files linked to components is exported to MDTools so that it automatically assembles the component models on the block.

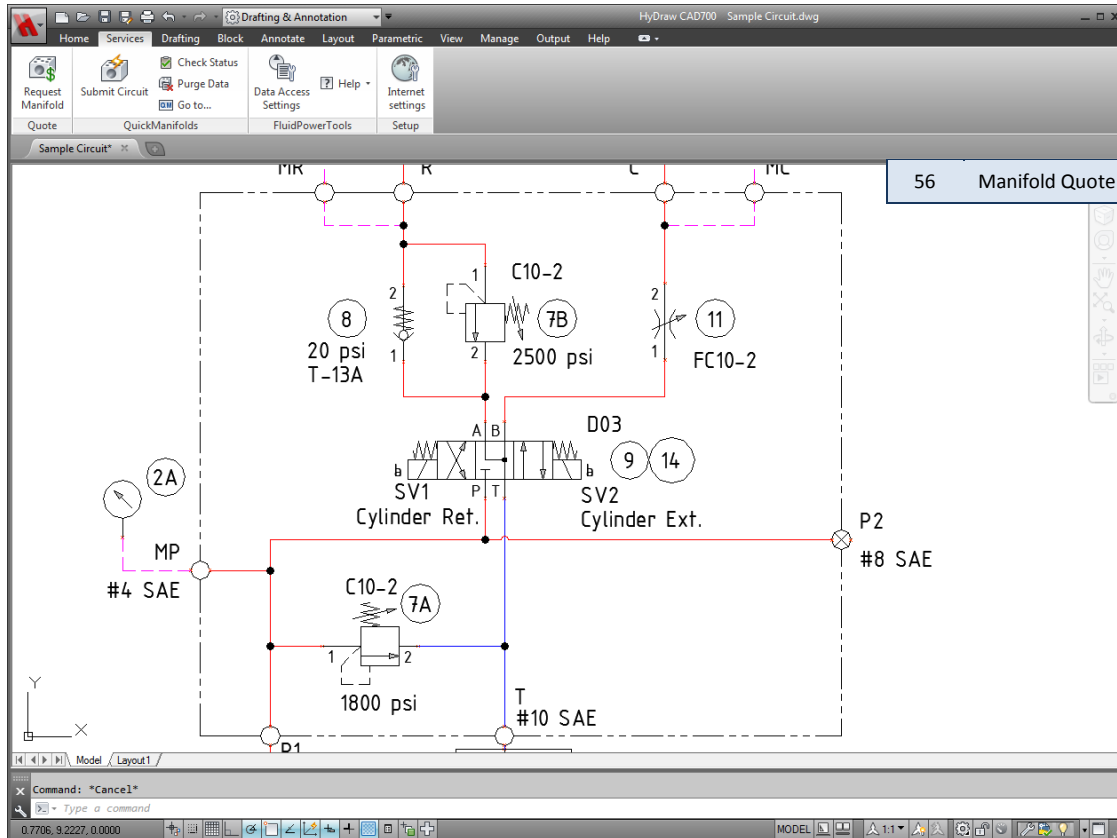


Export to MDTools sub-menu



Save As dialog box for XML

Manifold Quote



56. Manifold Quote

Request a manifold quotation from a registered manifold manufacturer.

1. Click Services > **Request Manifold** from the HyDraw® CAD ribbon menu.

The Select Symbols and Connections prompt displays.

2. Select symbols and connections from your drawing.
After completion of selection, press the **Enter** key.
3. Select the manufacturer, material and plating, delivery details, and the order quantity.

4. Click **Check Manufacturability**.

The Check Manufacturability dialog box displays.

✔ Sign in the manufacturable column shows that the cavity is available and ✖ sign shows the cavity is not available.

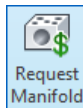
5. Click **Assign Cavity** to assign the cavity, where the cavity is not available.

The Assign Cavity dialog box displays.

6. Click **Submit**.

When the manifold quote request submission is successful, a message box displays.

The quotation is then mailed to the respective user mail ID.



Request Manifold Quote Menu tem

Manifold Quote

Part Number:

Sample Circuit:

Manufacturer:

Material and Plating

Material	Plating	Color
Aluminum 6061	No Plating	Gold
Aluminum 2024	Anodizing	Clear
Ductile Iron 65-45-12		Black
Steel (Weldable)		
Steel (Free Mach.)		

Delivery: ☒ 5 Work days * (Maximum 10 piece) ☐ 15 Work days * (Maximum 20 piece) ☐ 30 Work days * (Maximum 50 piece)

Order quantity:

* This delivery period doesn't include plating and shipping time.

Check Manufacturability Submit Cancel

Manifold Quote dialog box

Check Manufacturability

Component	Model	Cavity	Manufacturable
1	D1VW001C™	D03	✔
2	CVE00K™	T-22A	✔
3	CVE00K™	T-22A	✔
4	PRO2036™	VC103	✔

Part	Cavity	Manufacturable
P1	#4 SAE	✔
P2	#4 SAE	✔
P3	1/4-18	✔
T	1/2" Code 62	✔
Y	NPT 1/4	✔

Office Plug: Cavity: Manufacturable: ☒

3 Cavity is not available in the quote system.
Select an equivalent cavity using the Assign Cavity.

Assign Cavity OK Cancel

Check Manufacturability dialog box

Assign Cavity

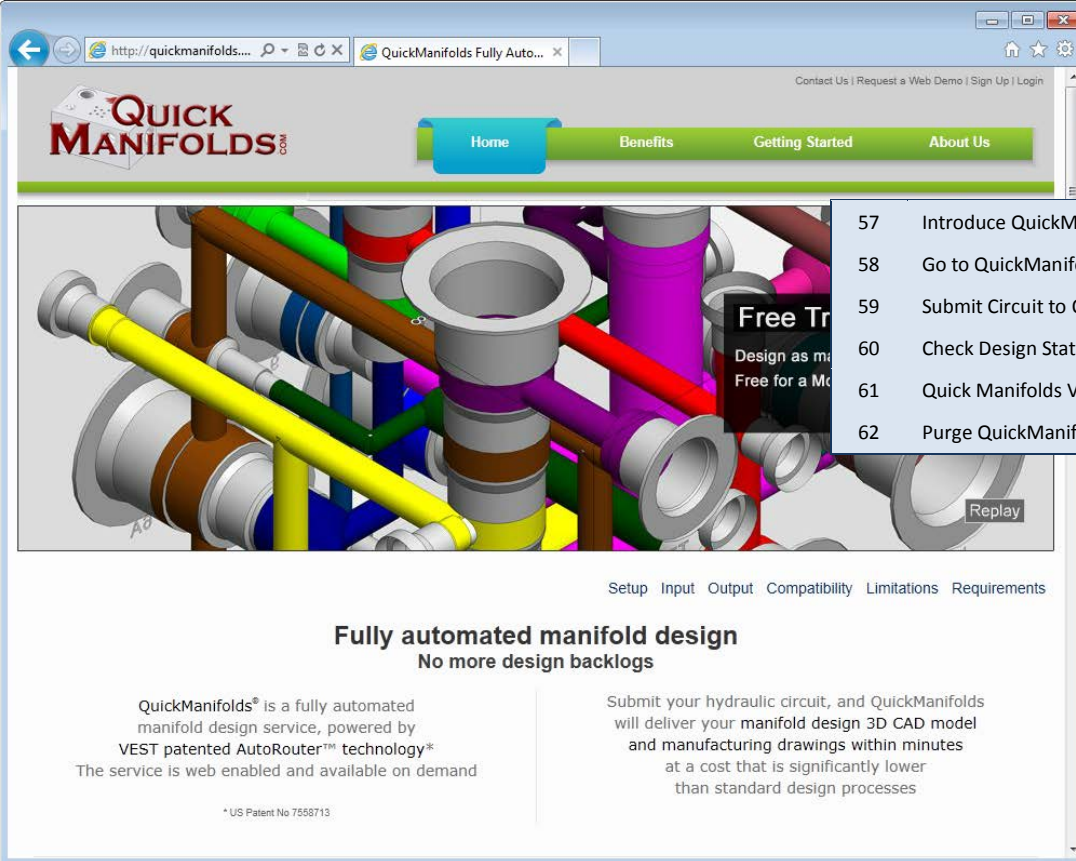
Libraries	Cavities
Command Controls	VC04-B3
Delta Power	VC07-3
Detrol	VC08-3
Hydac	VC08-PCV
Hydrex	VC10-3
Integrated Hydraulics	VC10-CBV
My Library	VC10-PCV
Parker	VC10-SH3
Rexroth	VC12-3
Sauer Danfoss	VC12-S3
Sun Hydraulics	VC16-3
Vickers-Eaton	VC16-PCV
	VC16-S3
	VC20-SH3

Show all Cavities Show all patterns

OK Cancel

Assign Cavity dialog box

Using QuickManifolds.com



The screenshot displays the QuickManifolds.com website. At the top, the browser address bar shows 'http://quickmanifolds.com'. The website header features the 'QUICK MANIFOLDS.COM' logo and a navigation bar with buttons for 'Home', 'Benefits', 'Getting Started', and 'About Us'. Below the header is a large 3D CAD model of a complex manifold assembly with various colored pipes (yellow, green, blue, red, purple) and fittings. A 'Free Trial' banner is overlaid on the model, stating 'Design as many manifolds as you want. Free for a month.' A 'Replay' button is visible in the bottom right corner of the model area. To the right of the model, a vertical list of steps is shown, numbered 57 to 62. Below the model, a section titled 'Fully automated manifold design' with the subtitle 'No more design backlogs' describes the service. The text states: 'QuickManifolds® is a fully automated manifold design service, powered by VEST patented AutoRouter™ technology*. The service is web enabled and available on demand.' To the right of this text, it says: 'Submit your hydraulic circuit, and QuickManifolds will deliver your manifold design 3D CAD model and manufacturing drawings within minutes at a cost that is significantly lower than standard design processes.' At the bottom left of this section, a small footnote reads '* US Patent No 7558713'. At the bottom of the page, the text 'Hydraw CAD700' is visible.

57 Introduce QuickManifolds

58 Go to QuickManifolds.com

59 Submit Circuit to QuickManifolds.com

60 Check Design Status

61 Quick Manifolds Viewer

62 Purge QuickManifolds Data

Setup Input Output Compatibility Limitations Requirements

Fully automated manifold design
No more design backlogs

QuickManifolds® is a fully automated manifold design service, powered by VEST patented AutoRouter™ technology*. The service is web enabled and available on demand

Submit your hydraulic circuit, and QuickManifolds will deliver your manifold design 3D CAD model and manufacturing drawings within minutes at a cost that is significantly lower than standard design processes

* US Patent No 7558713

Hydraw CAD700

57. Introduction of QuickManifolds®

The www.QuickManifolds.com is an online service promoted by VEST, Inc. the leader in manifold design software. It can automatically create an error free compact manifold for an input hydraulic schematic drawing.

QuickManifolds® is an automated manifold design service, powered by VEST patented AutoRouter™ technology.*

The service is available 24x7 at www.QuickManifolds.com.

The process starts with a hydraulic circuit and the software generates a complete manifold design.

The AutoRouter™ program automatically places all cavities on the block, creates hydraulic connections between cavities, per the schematic drawing.

The program also does the required design checking.


Each assignment submitted to QuickManifolds® can take a couple of seconds to 3-4 hours to design the manifold.

The time taken depends on the number of cavities, connection complexity, and constraints applied.

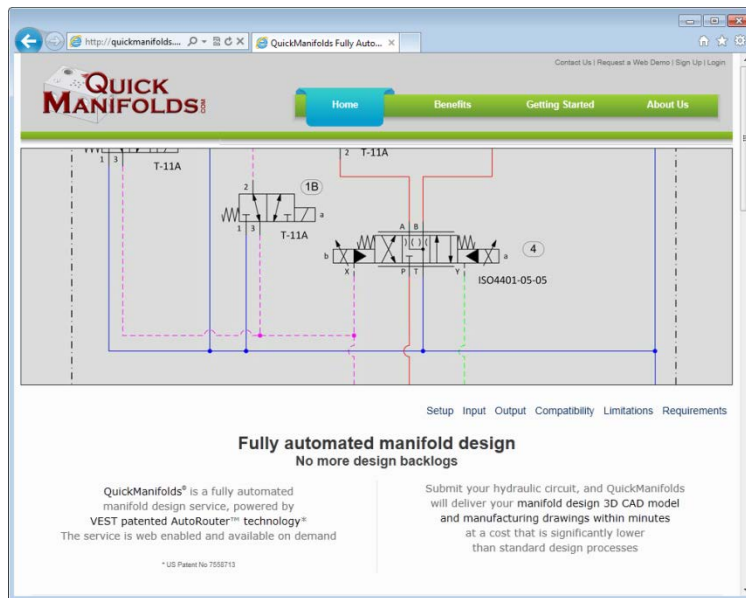
** US Patent No. 7558713*

58. Go to QuickManifolds.com

The Services > Go to QuickManifolds command directs you to the www.QuickManifolds.com website.

1. Click Service> **Go to...** .

The command directs you to www.QuickManifolds.com.



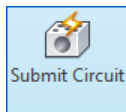
QuickManifolds.com

59. Submit Circuit to QuickManifolds

Submit HyDraw® schematics to QuickManifolds® for automated manifold design.

1. Click Services > **Submit Circuit** on the QuickManifolds section of the HyDraw CAD ribbon menu.

The QuickManifolds: Login dialog box displays.

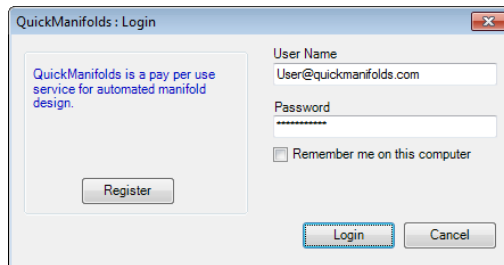


Submit Circuit Menu

2. Enter your user name and password.

The Select Symbols and Connections prompt displays.

3. Select the required symbols and connections and then press the **Enter** key.



QuickManifolds: Login

The QuickManifolds: Submit Design page loads.

The data and the default values entered into HyDraw® are automatically read from the QuickManifolds® Web server and populated into the user interface.

The QuickManifolds: Submit Design page has 4 property tabs: Geometry, Design, Constraints, and Submit.

1. Geometry Tab

- The Geometry tab consists of three sections, Component, External Port, and Orifice.
- The **Component** section displays ID, Model, Cavity, Outline, Stamp, and Available status of the cavity.

- Select the footprint/cavity and click **Assign Outline** that redefines the component outline.

For Cavities – Select the Use Spot Face Diameter or Custom and define the diameter

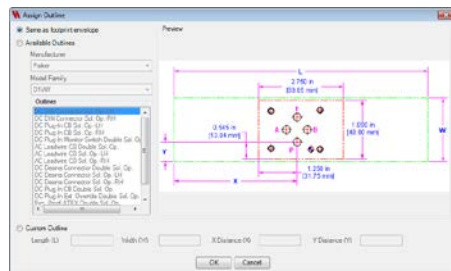
or

Select Available outline to select available outline for the selected cavity.

QuickManifolds: Submit Design- Geometry

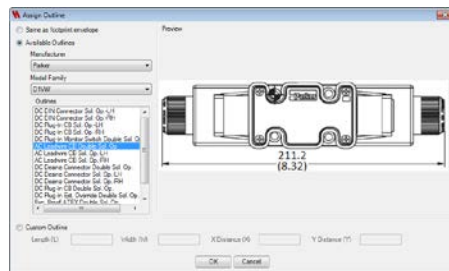
Cavity – Assign Outline

For Footprint - Select Same as Footprint.



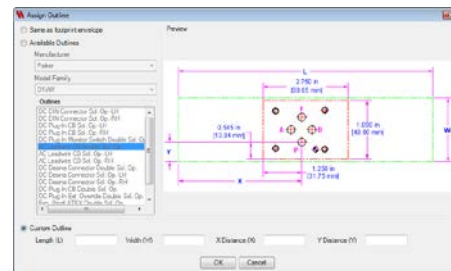
Footprint - Assign Outline same as Footprint

For Footprint - Select Custom Outline and define L, W, X and Y as described in the Preview.



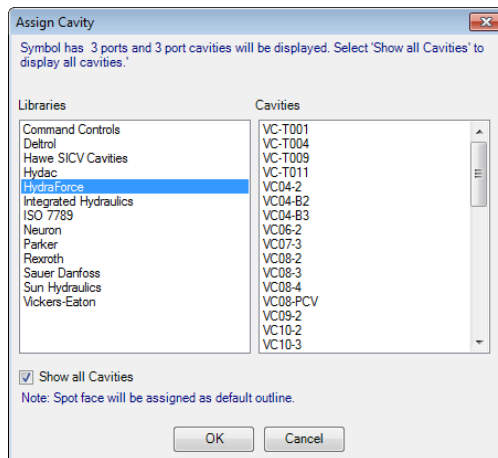
Footprint - Assign Outline : custom

For Footprint - Select Available Outline to select outline as described in the Preview.



Footprint - Assign Outline : Available outline

- Select the footprint/cavity and click **Assign Cavity** that reassigns the cavity.
By default only the footprints/cavities with the same number of ports are displayed.
*To view all cavities irrespective of the number of ports of the footprints/cavity, select **Show All Cavities**.*
- The **External Port** section displays ID, Model, Cavity, Outline, Stamp, and Available status of the cavity.
- The Assign Outline option enables to redefine the outline of the ports.
- The Assign Cavity option enables to reassign the cavity for the ports.
- The **Orifice** section displays Orifice, Cavity, Outline, Stamp, and Available status of the cavity.
- The Assign Cavity option enables to reassign the cavity for the orifices.



Assign Cavity

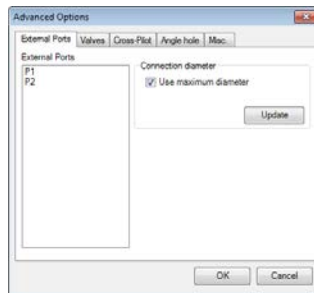
2. Design Tab

1. Configure following settings,
 - Design Units
 - Mounting Holes and Mounting Face
 - Angle hole: Select Connect using angle hole check box
 - Design Parameters, such as wall thickness, component clearance, drill slenderness ratio
 - Manifold Material library
 - Drill Diameters library
 - X-Drill Standard Library
2. Click **Save**.



QuickManifolds Submit Design- Design

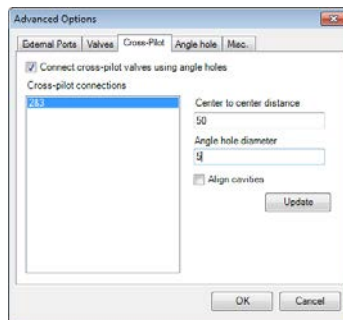
3. Click **Advanced Options** to set the following



a. Advanced Options – External Ports

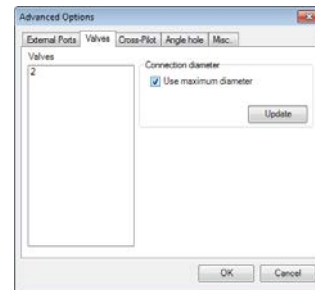
External Ports

Use **maximum diameter** for ports.



c. Advanced Options – Cross-Piloted.

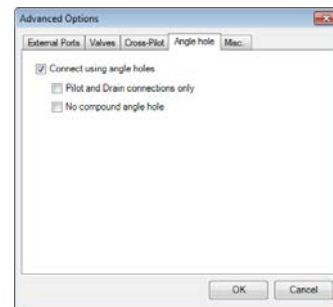
Cross-pilot - the **center to center distance** between two cross-piloted valves, the **Angle hole diameter**, and **Align cavities**.



b. Advanced Options – Valves

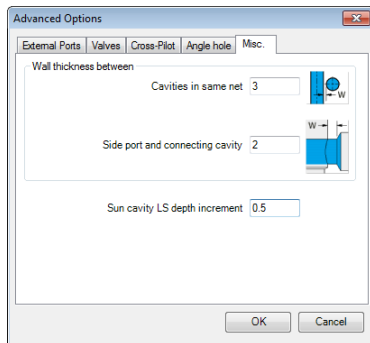
External Valves

Use **maximum diameter** for valves.



d. Advanced Options – Angle hole.

Select **Connect using angle hole**, if required then select check boxes, per your requirement for the **pilot and drain connections** and for the **simple angle hole**.



e. Advanced Options – Misc.

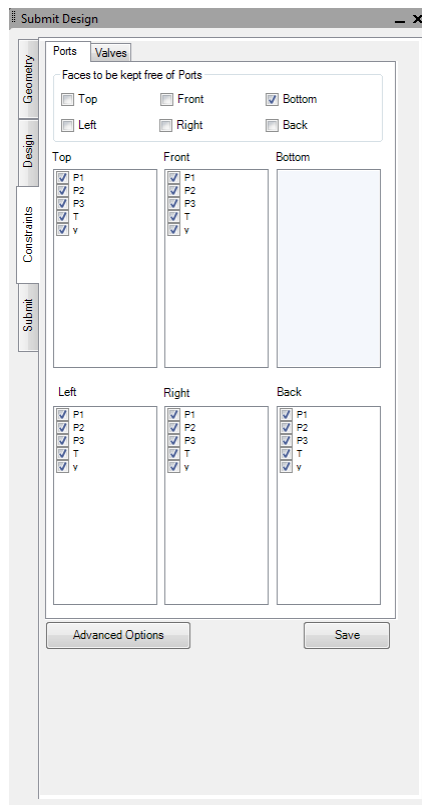
Wall thickness between cavities in the same net, the side port connecting cavity and the Sun cavity LS depth increment.

3. Constraints Tab

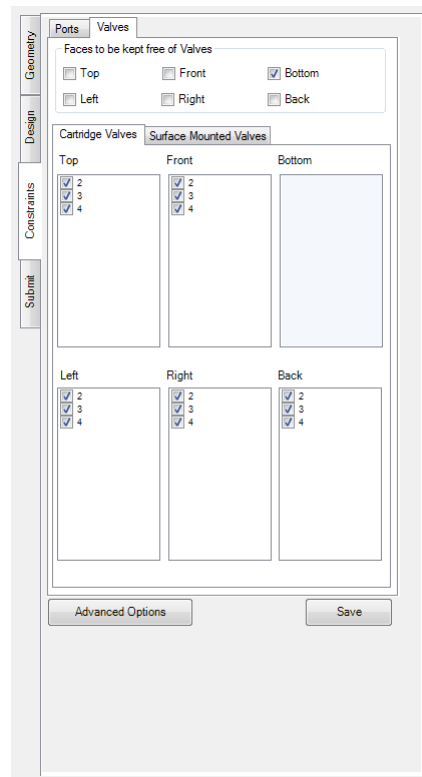
1. Define the Face constraints of the **Ports** and **Valves** in two different sections.
2. Independently set the face constraints for **Cartridge Valves** and **Surface Mounted Valves** tabs in the Valves section.
3. Click **Save** button to save the QuickManifolds® data to the schematic.

Note:

To set the Advanced Constraints, click the **Advanced Options** button.



QuickManifolds : Submit Design Constraints (Ports)



QuickManifolds :Submit Design Constraints (Valves)

4. Advanced Constraints

Set constraints for external ports and valves.

Note:

Advanced constraints are available only for external ports and valves that are constrained to a single face.

Specify Location

1. Select **External Port/Valves** from the External Port list or the Valves list.
2. Specify the **X-Distance** and **Y-Distance** of the selected port from the origin.

You can see the preview of the selected cavity and its location.

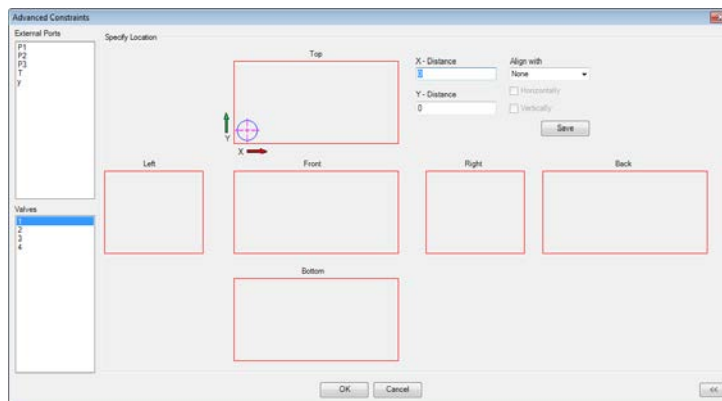
3. Click **Save**.

Aligning

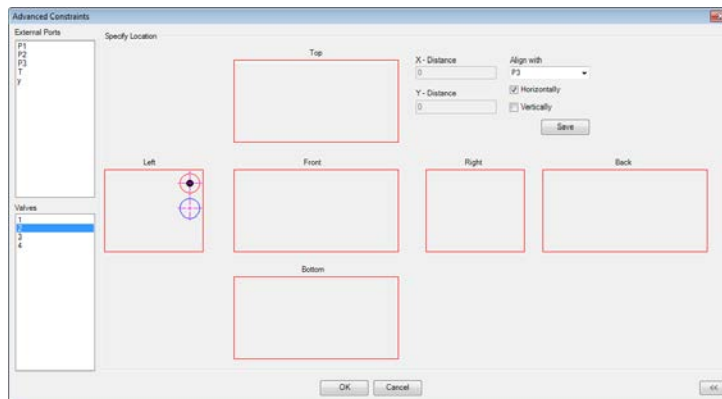
1. Select **External Port/Valves** from the External Port list or the Valves list.
2. Select the External Port/Valve name from the **Align with** drop down.
3. Select the **Horizontally** or **Vertically** checkbox, per requirement

View the preview of the selected cavities and their orientation.

4. Click **Save**.



QuickManifolds : Advanced Constraints



QuickManifolds: Advanced Constraints

5. Submit Tab

1. Define Title Block Information such as, Title, Customer, Part No. Drawn, Checked by, Approved, and Projection Type.

The block design cost is also displayed.

2. Click **Export** to save the QuickManifolds® Schematic data in the XML format.

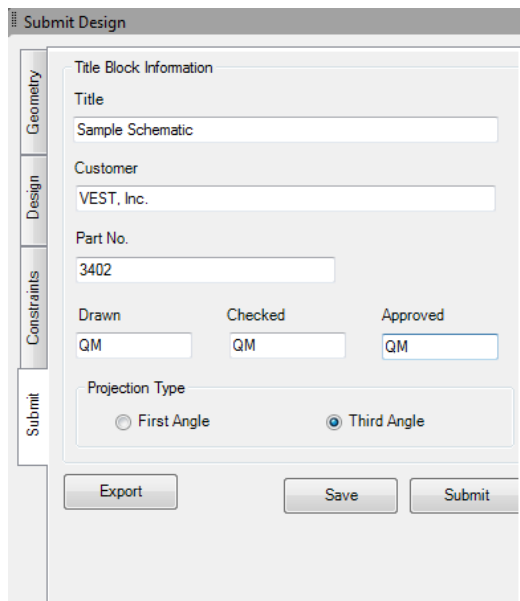
3. Click **Save** to save the QuickManifolds data to the schematic.

4. Click **Submit** to submit the design to QuickManifolds.
A message displays to state the current block design cost.

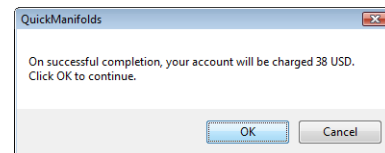
5. Click **OK** to continue.

When the circuit is successfully submitted to QuickManifolds.com, the Submit Circuit message displays.

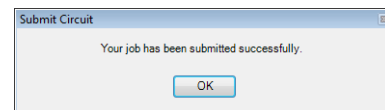
6. Click **OK**.



QuickManifolds Submit Design- Submit



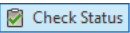
Block Design Cost



Successful Circuit Submission

60. Check Design Status

Check the status of the manifold design submitted to QuickManifolds*.

1. Click Services > **Check Status**  from the QuickManifolds section in the HyDraw* CAD ribbon menu.

The QuickManifolds: Login dialog box displays.

2. Enter your user name and password.

The QuickManifolds: Check Design Status dialog box displays.

3. Provide the design Jobs detail, such as Created by, Created period, Part number, and Customer.

4. Click **Go**.

The submitted designs are enlisted in the Job Detail grid.

5. Select the design from the **Job Detail** section.

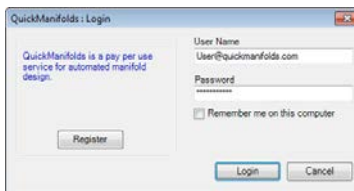
6. Click **View Job Details**.

*The **Refresh** button repopulates the job detail and status from the QuickManifolds* server.*

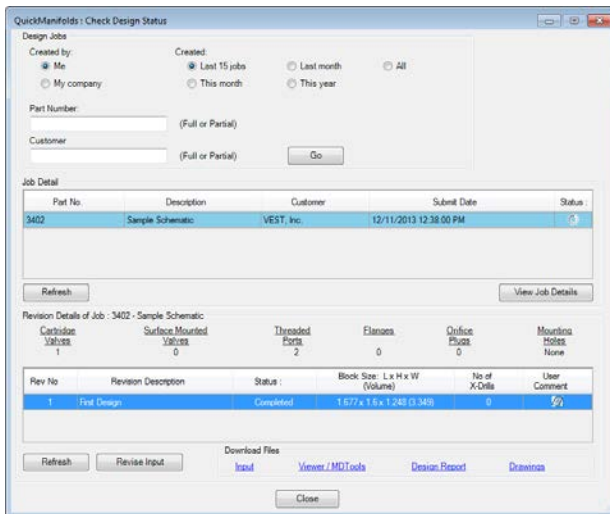
The Revision Details grid displays the design details.

*The **Revise Input** button enables resubmitting the design with constraints charged at a very reduced cost i.e only 20% cost of the initial design.*

7. The **Download Files** section provides,
 - Input file in the XML format
 - MDTools* Viewer file
 - Design Report in the PDF format
 - Drawings of the design in step format



QuickManifolds: Login

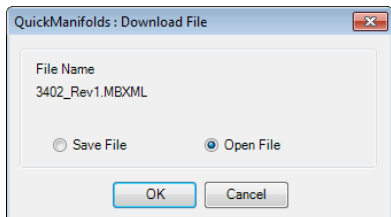


QuickManifolds : Check Design Status

61. QuickManifolds Viewer

1. Click the **Viewer/MDTools** download link.

The QuickManifolds: Download File dialog box displays.

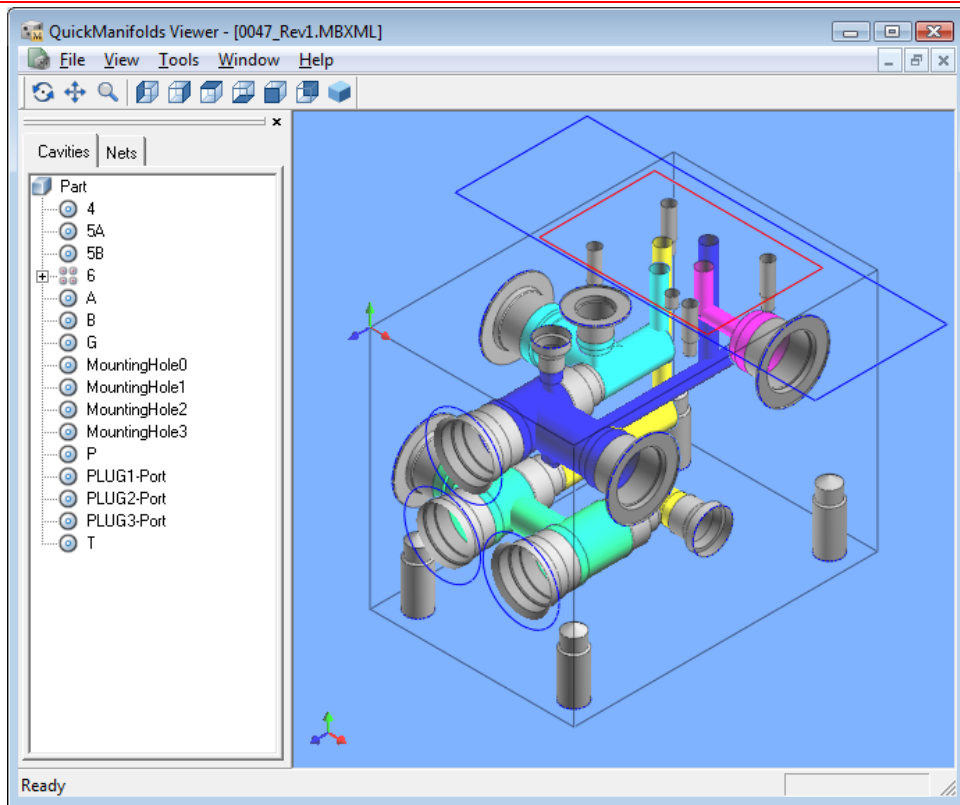


QuickManifolds: Download File

2. Select **Save File** or **Open File**.
3. Select **OK**.

Note:

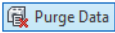
- To view the output files, install QuickManifolds® Viewer available along with the HyDraw® installation.
- To get further details on working with QuickManifolds and downloading of the QuickManifolds' User Manual, please visit www.QuickManifolds.com.



QuickManifolds Viewer opens the Design Output

62. Purge QuickManifolds Data

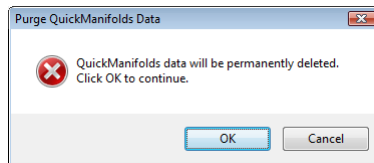
Remove the QuickManifolds[®] information from components in the schematic drawing.

1. Click Services > **Purge Data**  from the QuickManifolds section in the HyDraw[®] CAD ribbon menu.
The Purge QuickManifolds Data warning message box displays and warns that the QuickManifolds data will be removed permanently.

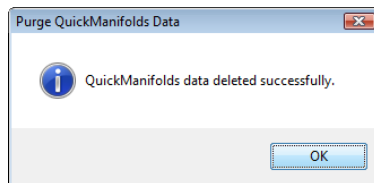
2. Click **OK**, if you want to continue.
On completion, prompts a message – QuickManifolds data removed successfully.
3. Click **OK**.

CAUTION

- Save the schematic with a different file name and/or location before removing QuickManifolds information, for your convenience and future reference.



Purge QuickManifolds Data warning message box



Purge QuickManifolds Data message box

FluidPowerTools.com

FluidPowerTools.com : Component and design data for the Hydraulics Industry - Windows Internet Explorer

http://fluidpowertools.com/

Snagit

FluidPowerTools.com : Component and design d...

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Fluid POWER TOOLS

Component Data Manufacturers Tools Services

Fluid Power Resources

Questions?
01 (248) 649 9550
email: support@VESTusa.com

FluidPowerTools.com gives real time access to fluid power data and resources. It is promoted by VEST, Inc. the pioneer in engineering design software and services for the fluid power industry.

Engineering and design data of Fluid Power components of major manufacturers delivered by FluidPowerTools.com

Rexroth
Bosch Group

EATON

SUN hydraulics

HYDAC

Parker

SAUER DANFOSS

atos

HYDRAFORCE
High Performance Hydraulic Cartridge Valves and Electro-Hydraulic Control Systems

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FluidPowerTools is not affiliated to any of the manufacturers listed.

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Error on page.

Internet | Protected Mode: On

105%

- 63 Data Access Settings
- 64 Help for FluidPowerTools.com
- 65 Internet Settings

63. Data Access Settings

Select Manufacturer Database to search components.

1. Click Services > **Data Access Settings** on FluidPowerTools section in the HyDraw® CAD ribbon menu.

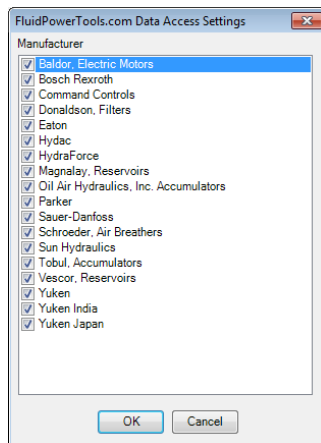
The FluidPowerTools Data Access Settings dialog box displays.

2. Select the manufacturers from the list and click OK.



Data Access
Settings

Data Access Settings Menu Item



Data Access Settings Dialog Box

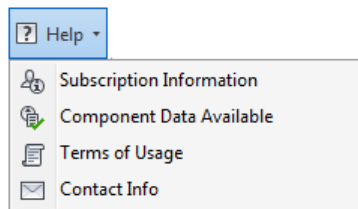
64. Help for FluidPowerTools.com

1. Subscription Information

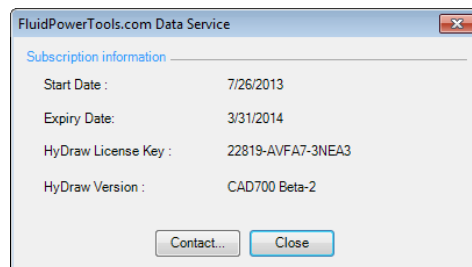
Know the HyDraw® version and subscription information.

- Click Services > Help > **Subscription Information** on the FluidPowerTools section of the Services tab in the HyDraw CAD ribbon menu.

The FluidPowerTools.com Data Service dialog box displays.



Help menu and submenu

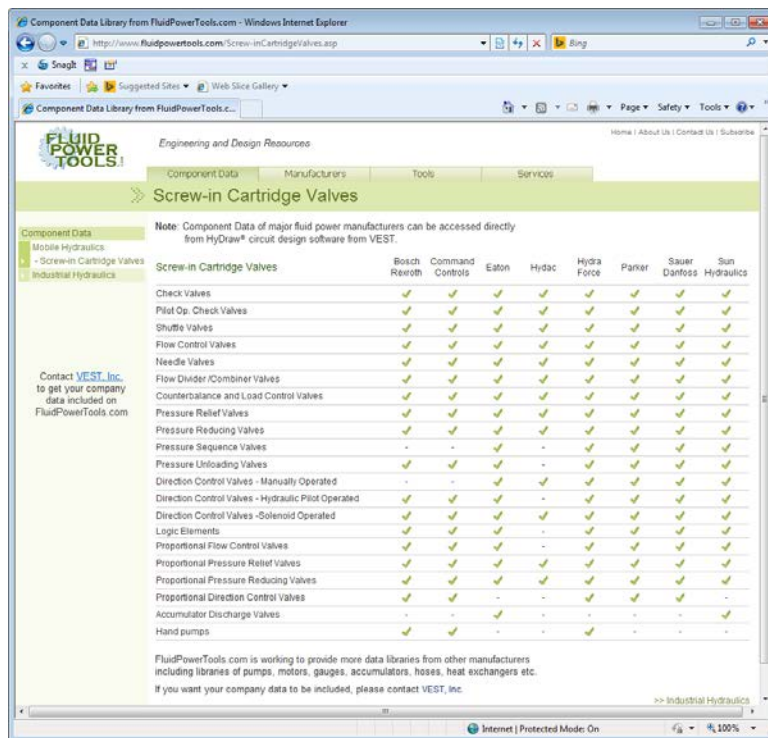


The FluidPowerTools.com Info.....Change

2. Component Data Available

Navigate to *FluidPowerTools.com*, where you can see the component data of major Fluid Power manufacturers.

- Click Services > Help > **Component Data** on the FluidPowerTools section on the HyDraw® CAD ribbon menu.



The screenshot shows a web browser window displaying the 'Component Data Library from FluidPowerTools.com'. The page title is 'Screw-in Cartridge Valves'. A note states: 'Note: Component Data of major fluid power manufacturers can be accessed directly from HyDraw® circuit design software from VEST.' The table lists various hydraulic components and their availability from ten manufacturers: Bosch Rexroth, Command Controls, Eaton, Hydac, Hydra Force, Parker, Sauer Danfoss, and Sun Hydraulics. The components listed include Check Valves, Pilot Op. Check Valves, Shuttle Valves, Flow Control Valves, Needle Valves, Flow Divider/Combiner Valves, Counterbalance and Load Control Valves, Pressure Relief Valves, Pressure Reducing Valves, Pressure Sequence Valves, Pressure Unloading Valves, Direction Control Valves - Manually Operated, Direction Control Valves - Hydraulic Pilot Operated, Direction Control Valves - Solenoid Operated, Logic Elements, Proportional Flow Control Valves, Proportional Pressure Relief Valves, Proportional Pressure Reducing Valves, Proportional Direction Control Valves, Accumulator Discharge Valves, and Hand pumps. The availability is indicated by green checkmarks in the corresponding columns.

Component Data	Bosch Rexroth	Command Controls	Eaton	Hydac	Hydra Force	Parker	Sauer Danfoss	Sun Hydraulics
Check Valves	✓	✓	✓	✓	✓	✓	✓	✓
Pilot Op. Check Valves	✓	✓	✓	✓	✓	✓	✓	✓
Shuttle Valves	✓	✓	✓	✓	✓	✓	✓	✓
Flow Control Valves	✓	✓	✓	✓	✓	✓	✓	✓
Needle Valves	✓	✓	✓	✓	✓	✓	✓	✓
Flow Divider/Combiner Valves	✓	✓	✓	✓	✓	✓	✓	✓
Counterbalance and Load Control Valves	✓	✓	✓	✓	✓	✓	✓	✓
Pressure Relief Valves	✓	✓	✓	✓	✓	✓	✓	✓
Pressure Reducing Valves	✓	✓	✓	✓	✓	✓	✓	✓
Pressure Sequence Valves	-	-	✓	-	✓	✓	✓	✓
Pressure Unloading Valves	✓	✓	✓	-	✓	✓	✓	✓
Direction Control Valves - Manually Operated	-	-	✓	✓	✓	✓	✓	✓
Direction Control Valves - Hydraulic Pilot Operated	✓	✓	✓	-	✓	✓	✓	✓
Direction Control Valves - Solenoid Operated	✓	✓	✓	✓	✓	✓	✓	✓
Logic Elements	✓	✓	✓	-	✓	✓	✓	✓
Proportional Flow Control Valves	✓	✓	✓	-	✓	✓	✓	✓
Proportional Pressure Relief Valves	✓	✓	✓	✓	✓	✓	✓	✓
Proportional Pressure Reducing Valves	✓	✓	✓	✓	✓	✓	✓	✓
Proportional Direction Control Valves	✓	✓	-	-	✓	✓	✓	-
Accumulator Discharge Valves	-	-	✓	-	-	-	-	✓
Hand pumps	✓	✓	✓	-	✓	-	-	-

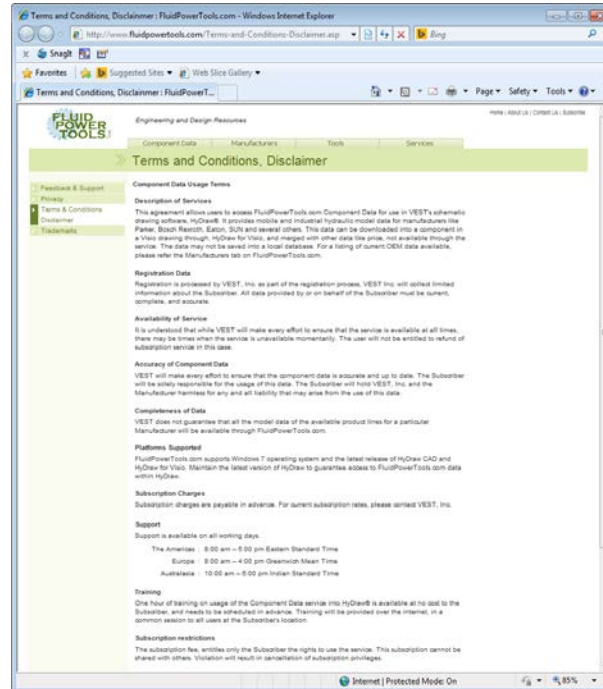
FluidPowerTools.com is working to provide more data libraries from other manufacturers including libraries of pumps, motors, gauges, accumulators, hoses, heat exchangers etc. If you want your company data to be included, please contact VEST, Inc.

The FluidPowerTools.com Component Data

3. Terms of Usage

Navigate to FluidPowerTools.com, where you can see the terms and conditions of using the services on FluidPowerTools.com

1. Click Services > Help > **Terms of Usage** on the FluidPowerTools section on the HyDraw® CAD ribbon menu.

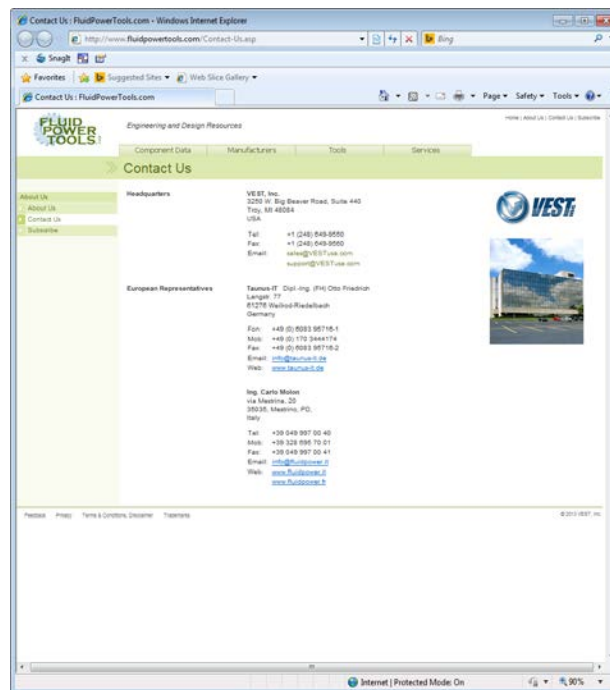


The FluidPowerTools.com Terms and Conditions, Disclaimer

4. Contact Info.

Navigate to *FluidPowerTools.com*, where you can find the contact information of the VEST team.

- Click Services > Help > **Contact Info** on the FluidPowerTools section on the HyDraw® CAD ribbon menu.



The FluidPowerTools.com Contact Info

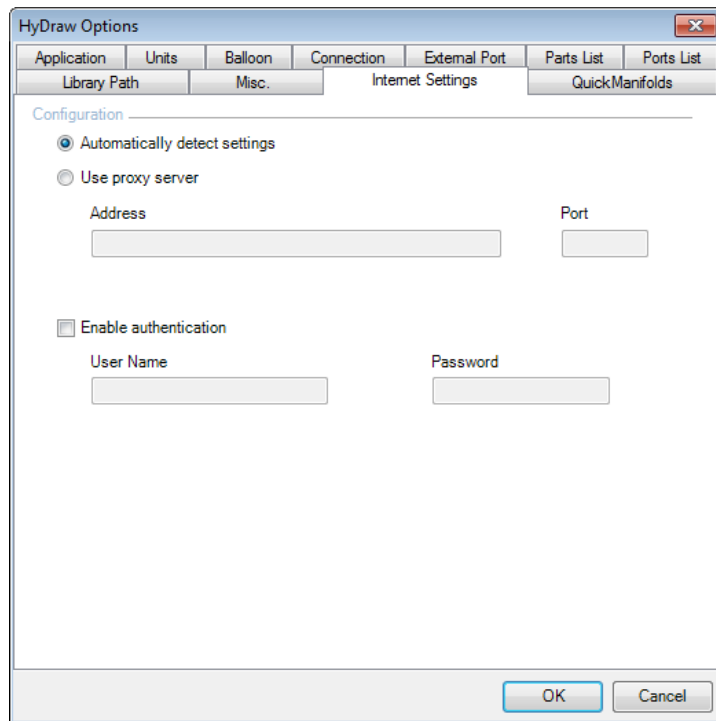
65. Internet Settings

Configure the Internet settings for QuickManifolds.com and FluidPowerTools.com.

1. Click Services > **Internet Settings** on the Setup section of the Services tab in the HyDraw[®] CAD ribbon menu.

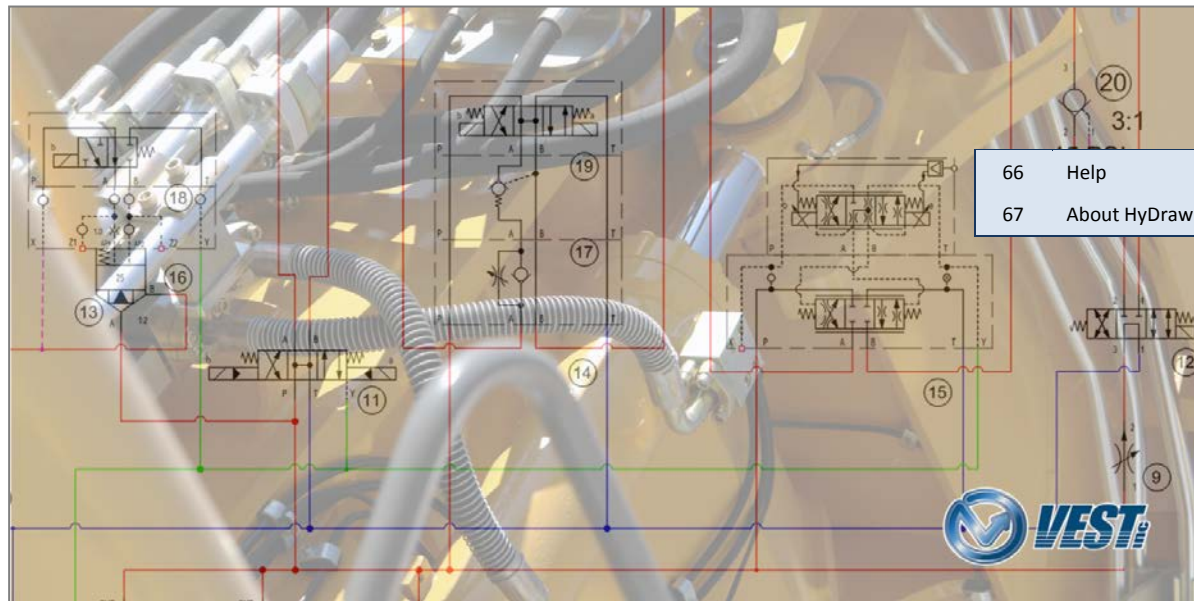
The Internet settings tab page displays.

2. Configure the connection, per requirement.
3. Press **OK** to apply and exit.

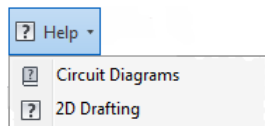


HyDraw Options: Internet Settings

HyDraw CAD Help



66. Help



Help Command Menu and Sub menu

Circuit Diagrams

The Circuit diagram command opens the HyDraw® CAD⁷⁰⁰ user manual.

2D Drafting

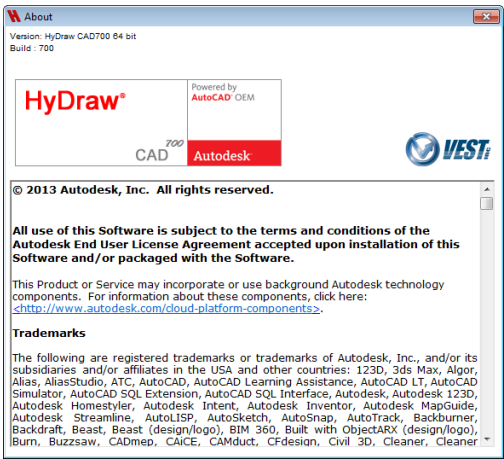
The 2D Drafting command opens the 2D drafting help file for HyDraw® CAD⁷⁰⁰.

67. About HyDraw

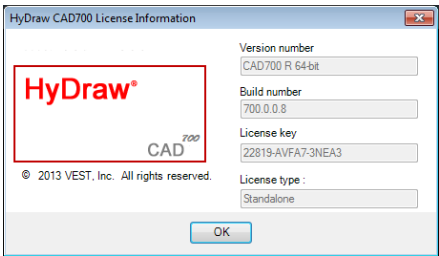
Displays product information.



Note:
In the Command line, type in **LicenseInfo** to get the license information with Version Number, Build number, Serial number and License type details.

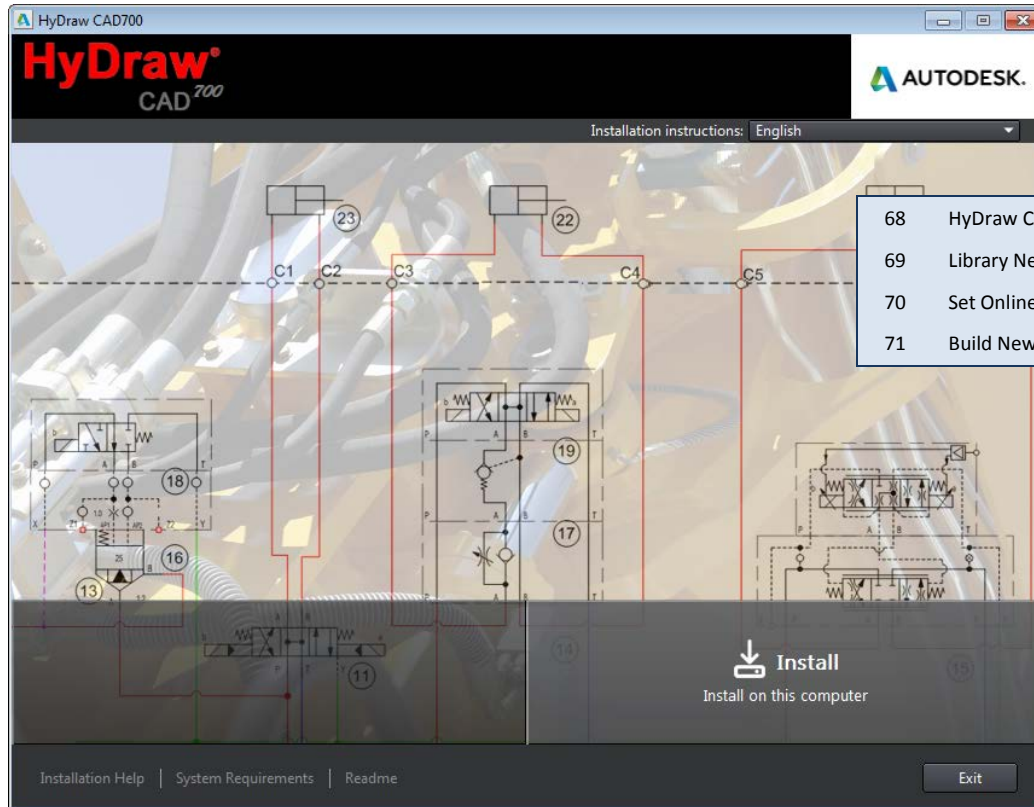


About HyDraw dialog box



HyDraw CAD⁷⁰⁰ License Info

Installation & Setup



68. HyDraw CAD⁷⁰⁰ Installation

The HyDraw[®] installation program installs HyDraw CAD⁷⁰⁰ on your computer.

1. System Requirements:

The system requirements are provided in the product documentation.

Software

- Microsoft Windows 7/8 (32/64-bit).
- Microsoft Internet Explorer[®] 7.0 or later.
- Adobe Reader 7.0 or higher.
- Excel 2007* or higher.

* Required only for exporting HyDraw data.

Hardware

- **Processor : 32-bit**
- Windows 7: Intel[®] Pentium 4 or AMD Athlon[™] Dual Core, 3.0 GHz or higher with SSE2 technology
- **Processor : 64-bit**
- AMD Athlon 64 with SSE2 technology, AMD Opteron[®] processor with SSE2 technology,
- Intel[®] Xeon[®] processor with Intel EM64T support and SSE2 technology, or Intel Pentium 4 with Intel EM64T support and SSE2 technology.
- **Memory : 2 GB RAM (4 GB Recommended)**
- **Display Resolution : 1,024 x 768 display resolution with true color (1,600 x 1,050 with true color recommended)**
- **Hard Disk : 6.0 GB free disk space**

Note:

The minimum required configuration is only listed above; however it is recommended to use a higher hardware configuration for power users.

2. Software Installation

1. Insert the HyDraw⁷⁰⁰ CAD CD into the CD-ROM drive.
If Auto Run is not set, then:
 - a) On the Start menu, click **Run**.
 - b) Browse to the Setup.exe program on the CD-ROM drive.
 - c) Select **Setup.exe** and click **Open**.
 - d) Click **OK**.

The HyDraw⁷⁰⁰ CAD installation program dialog box displays.

1. Click **Install Products** to install the HyDraw CAD application.
2. Accept the **License Agreement** and click **Next**.

The Software can be configured for both typical and custom installation.

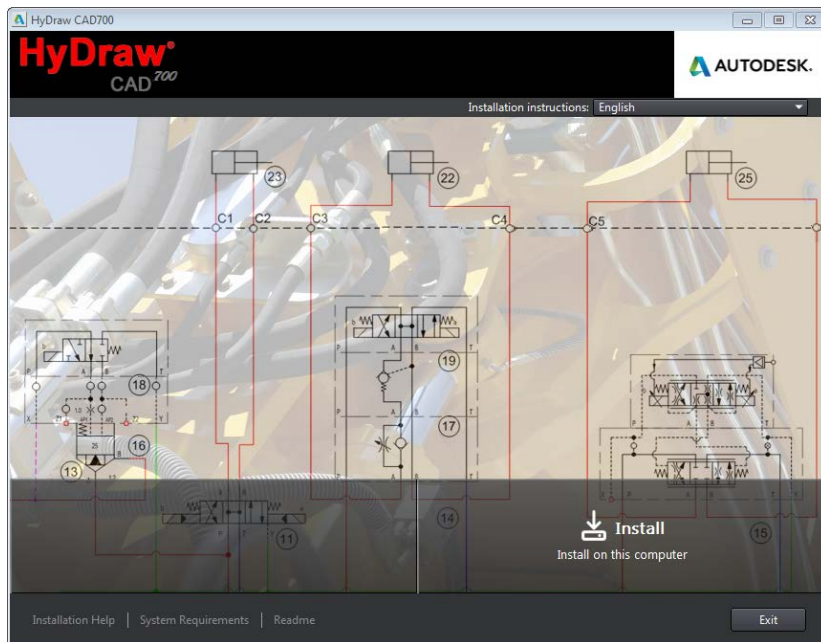
3. After Configuration, click **Configuration Complete**.
4. Click **Install** to install HyDraw CAD⁷⁰⁰.

View the HyDraw CAD User Manual and the Read Me file from the Documentation section, if required.

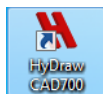
2. Once complete, click **Finish** in the HyDraw CAD⁷⁰⁰ dialog box and restart your computer for the changes to take effect.

HyDraw CAD⁷⁰⁰ and HyDraw Library Manager are installed on the system and HyDraw CAD⁷⁰⁰ is displayed in the Windows Start → Program menu.

A HyDraw CAD⁷⁰⁰ shortcut icon is created on the desktop.



HyDraw CAD Installation screen – change image



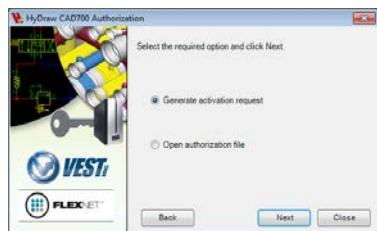
HyDraw CAD desktop icon

3. Submit Authorization Request

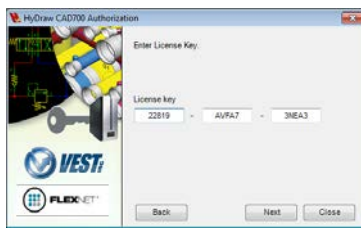
1. Double click the **HyDraw⁷⁰⁰** desktop icon.
The HyDraw CAD⁷⁰⁰ Authorization dialog box displays.



4. Select **Authorize HyDraw CAD⁷⁰⁰** or **Try HyDraw CAD⁷⁰⁰** for 30 days trial period.
5. Click **Next**.

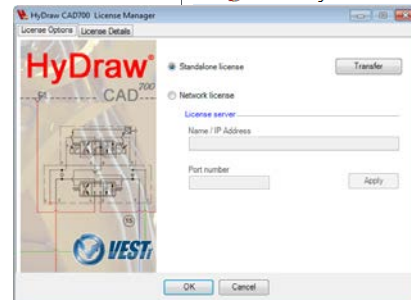
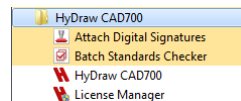


6. Select **Generate activation request**.
7. Click **Next**.



8. Enter the **Serial Number** provided when you purchased the software.
9. Click **Next**.

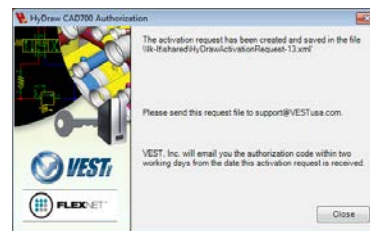
2. Alternatively select,
Start
> All Programs
> VEST
> HyDraw CAD⁷⁰⁰
> **License Manager**
The HyDraw License Manager dialog box displays.



3. Click the **Activate** button.
The HyDraw CAD⁷⁰⁰ Authorization dialog box displays.



10. Enter your contact details.
11. Click **Create Request**



12. Attach the request file to an email and send it to support@VESTusa.com.
13. Click **Close**.

Authorization request is generated and prompts to save in an xml file.

4. Authorize HyDraw CAD⁷⁰⁰

1. Double click the **HyDraw[®] CAD⁷⁰⁰** desktop icon.

If the program is not authorized, then the License Server Product Authorization dialog box displays.



2. Select **Authorize HyDraw CAD⁷⁰⁰**.
3. Click **Next**.

Alternatively select,
Start

> All Programs

> VEST

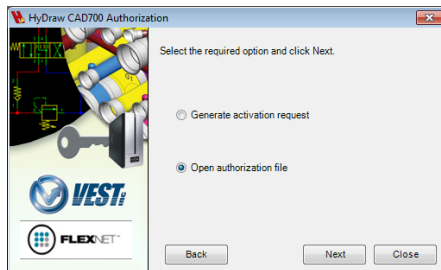
> HyDraw CAD⁷⁰⁰

> **License Manager**

The HyDraw CAD⁷⁰⁰ License Manager dialog box displays.

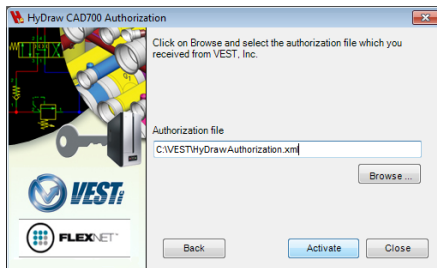
4. Click the **Activate** button.

The HyDraw CAD⁷⁰⁰ Authorization dialog box displays.



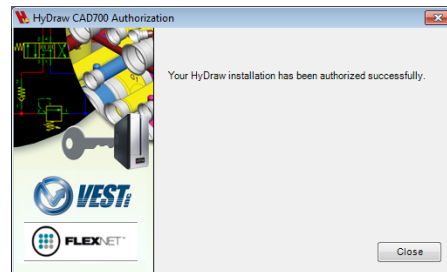
5. Select **Open authorization file**.

6. Click **Next**.



7. Click **Browse** and select the saved Authorization code XML file.

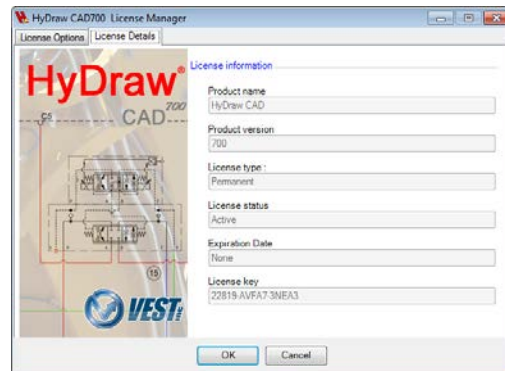
8. Click **Activate**.



9. Click **Close**.

The dialog box closes and HyDraw License is successfully activated.

10. Check the License details from the HyDraw License Manager.



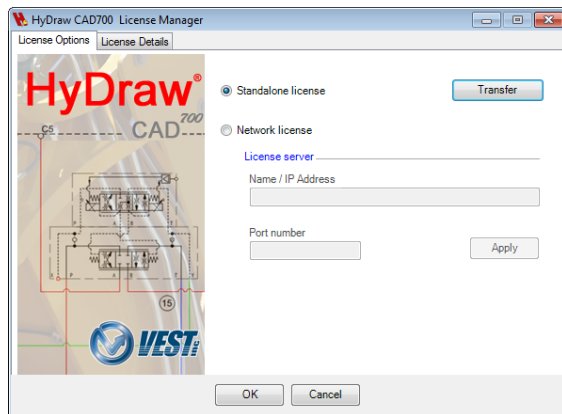
5. Transfer Standalone License

The fully activated Network License has the **Transfer** button to return the software to VEST for deactivation of the software on the current machine and reactivation on a different machine.

Submit Transfer Request

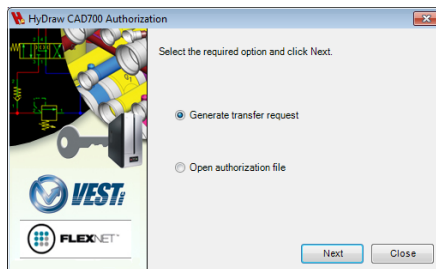
1. Select,
Start
> All Programs
> VEST
> HyDraw CAD⁷⁰⁰
> **HyDraw License Manager**

The HyDraw CAD⁷⁰⁰ License Manager dialog box displays.



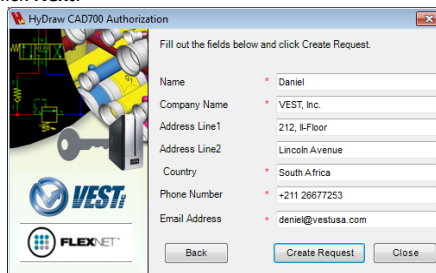
2. Click the **Transfer** button.

The HyDraw CAD⁷⁰⁰ Authorization dialog box displays.



3. Select **Generate transfer request**.

4. Click **Next**.



5. Change your contact details, if required.

6. Click **Create Request**.

A warning message appears indicating the license will be disabled.



7. Click **Yes** to continue or **No** to skip the transfer.

Authorization request is generated and prompts to save the xml file.



9. Attach the request file to an email and send it to **support@VESTusa.com**.

10. Click **Close**.

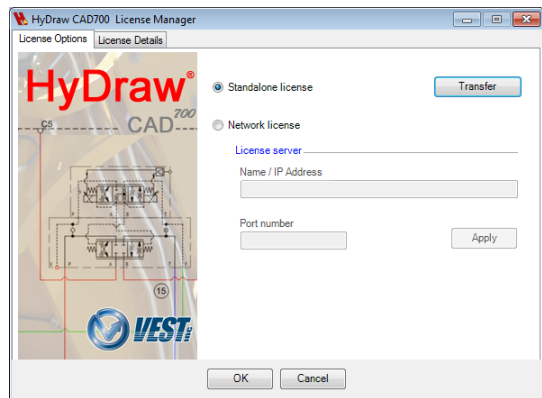
Note:

The transfer process will be completed only, when you activate the authorization file received from VEST.

Authorize Transfer Request

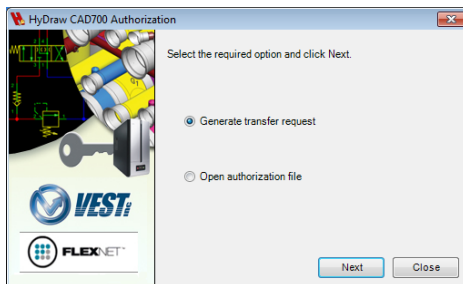
1. Select,
Start
> All Programs
> VEST
> HyDraw CAD⁷⁰⁰
> **HyDraw License Manager**

The HyDraw CAD⁷⁰⁰ License Manager dialog box displays.



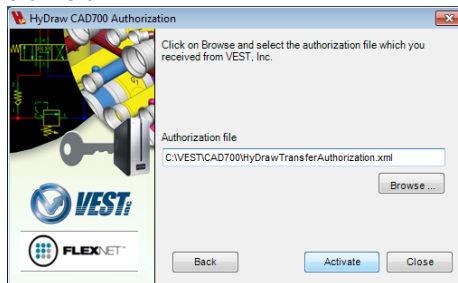
2. Click the **Transfer** button.

The HyDraw CAD⁷⁰⁰ Authorization dialog box displays.



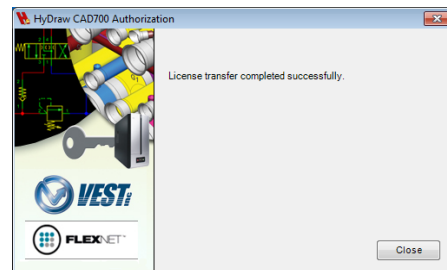
3. Select **Open authorization file**.

4. Click **Next**.



5. Browse and select the saved Authorization code .xml file.

6. Click **Activate**.



7. Click **Close**.

The dialog box closes and HyDraw CAD⁷⁰⁰ License is successfully transferred.

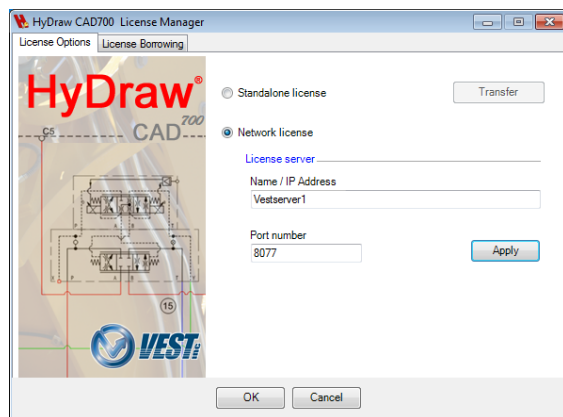
6. Use and Borrow Network License

The HyDraw client machines can use a network license available from the HyDraw License Server Manager.

Using Network License

1. Select,
Start
> All Programs
> VEST
> HyDraw CAD⁷⁰⁰
> HyDraw License Manager

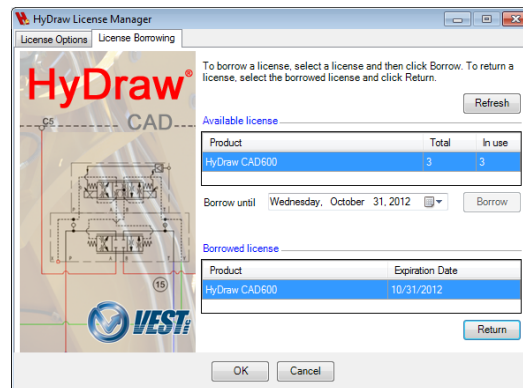
The HyDraw CAD⁷⁰⁰ License Manager dialog box displays.



2. Select the **Network license** option.
3. Set the License Server Name/IP Address and Port number.
4. Click **Apply**.

Borrowing Network License

1. Select the **License Borrowing** tab.



2. Select the **Borrow until** date.
3. Click the **Borrow** button.

The Borrowed license details are displayed in the grid.

4. Click **OK** to exit.

Return Network License

1. The license can be returned by clicking the **Return** button.
2. Click **OK** to exit.

69. Library Network Configuration

HyDraw[®] CAD⁷⁰⁰ can access data from the HyDraw library on a local network.

This enables all designers in an organization to work efficiently by sharing a common data resource.

For details on installing the HyDraw Library, refer the Library Manager User Manual.

Library Network Configuration

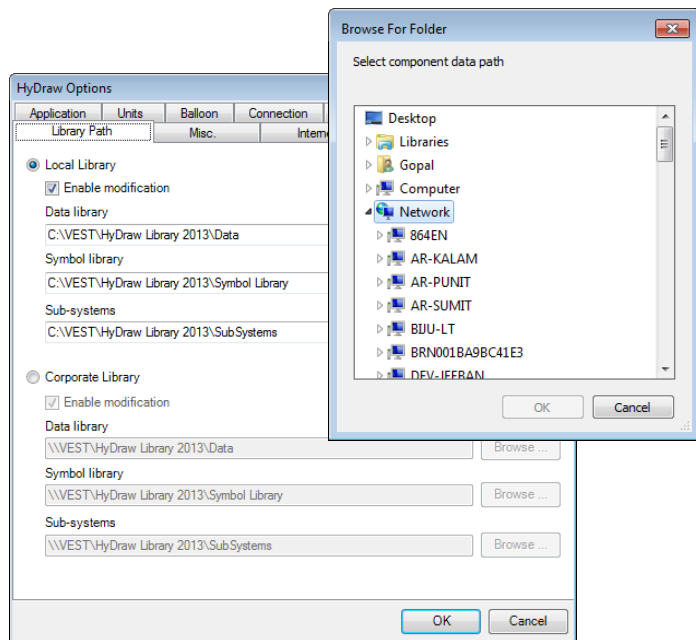
1. Select Home > **Options** from the HyDraw CAD⁷⁰⁰ ribbon menu.
The HyDraw Options dialog box displays.
2. Select the **Library Path** tab.
3. Select the **Corporate Library** option.
4. Select **Enable modification**, if you want to modify your library.
5. Click **Browse...**
6. Navigate to the folder, where your HyDraw Library data is installed.
7. Repeat step 2, 3, and 4 for each of the specified HyDraw data paths.
8. Click **OK**.

All HyDraw Library paths are configured as selected.

Note:

All data paths shown are default.

You can configure to common network data paths.



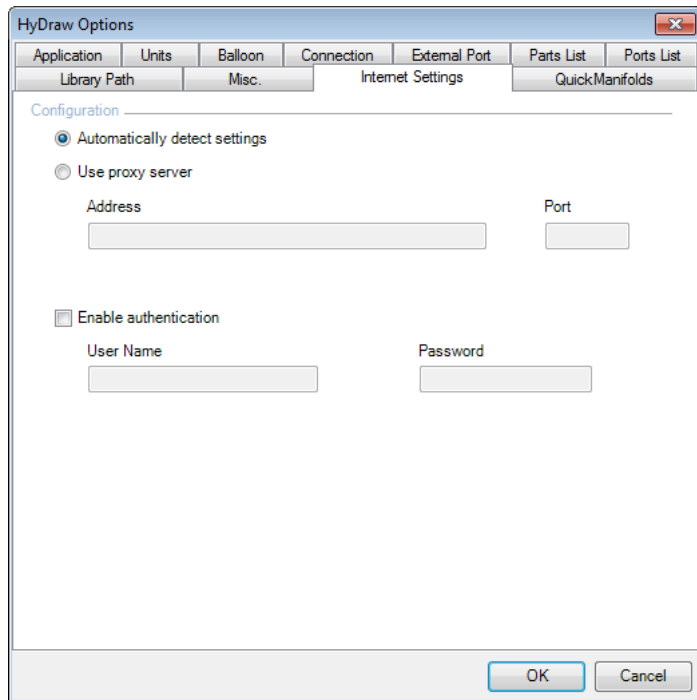
HyDraw CAD library default paths

70. Set Online Services (FPT & QM)

Internet Settings for accessing FluidPowerTools.com and QuickManifolds.com

1. Automatically detect settings

If your computer is connected to the Internet through a direct LAN connection, then select the **Automatically detect settings** option.



Connection Settings – Direct Connection

2. Proxy Connection

If your computer is connected to the Internet through a web proxy server, then select Use proxy server.

Configure the proxy settings.

1. Enter the address.
2. Enter the port number.
3. Enter authentication details, if required.

You may refer to the settings that may be already defined in your web browser.

Note:

- If an automatic configuration script is used in the browser for proxy, then use the Proxy server settings from the LAN Settings dialog box in the browser to configure your Proxy Connection settings.
- If you do not find proxy server details in the browser, then contact your system administrator.

The screenshot shows the 'HyDraw Options' dialog box with the 'Internet Settings' tab selected. The 'Configuration' section has two radio buttons: 'Automatically detect settings' and 'Use proxy server'. The 'Use proxy server' option is selected. Below this, there are two text input fields: 'Address' and 'Port'. The 'Enable authentication' checkbox is checked. Below this, there are two text input fields: 'User Name' (with 'User' entered) and 'Password' (with '*****' entered). At the bottom right, there are 'OK' and 'Cancel' buttons.

Connection Settings – Proxy Settings

71. Build New Symbols

Create symbols from the building elements supplied along with the library.

1. Build New Symbol

In the HyDraw® Library Explorer, browse to the required folder, where you want to add a new symbol.

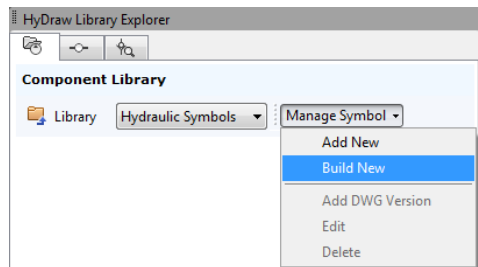
1. Click **Manage Symbol**.
2. Select **Build New** symbol from the drop down.

The Build New Symbol window displays.

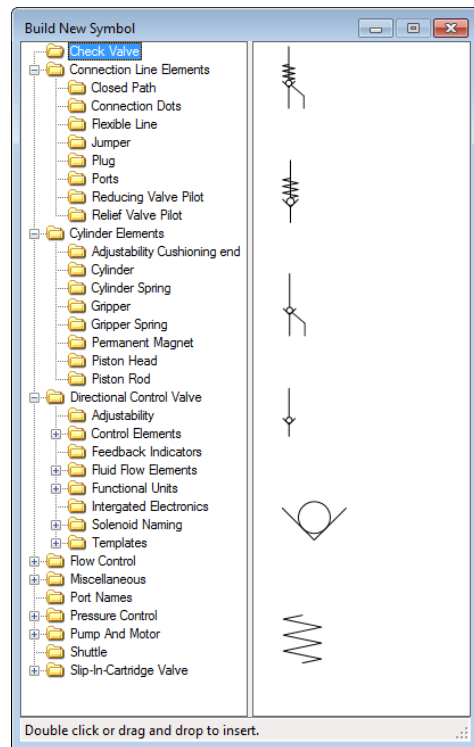
The basic building block elements are structured in logical folders for easy access.

3. Browse to the required folder.

The Basic Building Elements are displayed in the right side window.



Manage Symbol → Build New

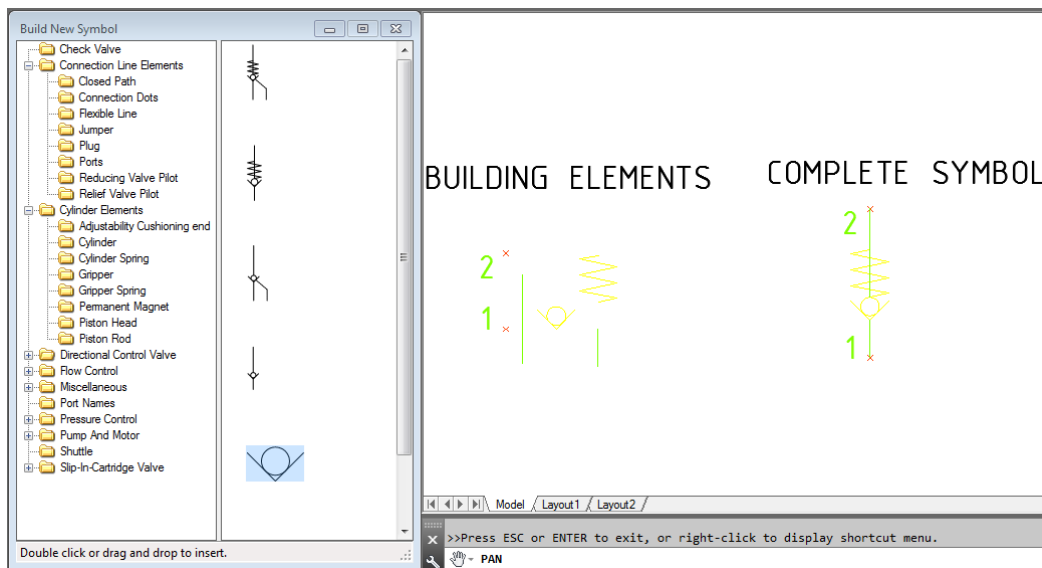


Build New Symbol –Basic Building Elements

4. Double click or drag and drop the basic elements to the drawing space.
5. Position the elements at the right place.
6. Insert the port names from the Port Names folder.

The Port Name symbol consists of a Connection Point and Port Name.

Once your design is complete, select the **Add New Symbol** to bring the newly built symbol into the library.



Basic Building Blocks inserted into the Drawing Space

2. Add New Symbol

Add newly designed or modified symbol in to the HyDraw® Symbol Library.

In the HyDraw Library Explorer, browse to the required folder, where you want to add a new symbol.

1. Click **Manage Symbol**.
2. Select **Add New Symbol** from the drop down.

The Add Symbol dialog box displays.

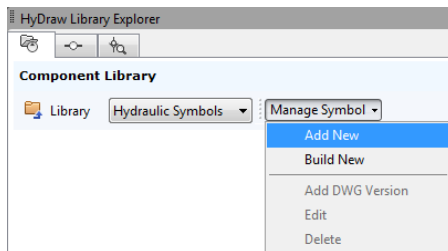
3. Select **Application**.
4. Select **Component Type**.
5. Click **OK**.

6. Select the symbol to be inserted.
7. Specify the Insertion point.
8. Press **Enter/Tab**.

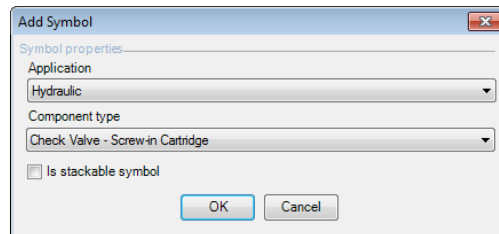
The symbol is inserted into the library.

Note:

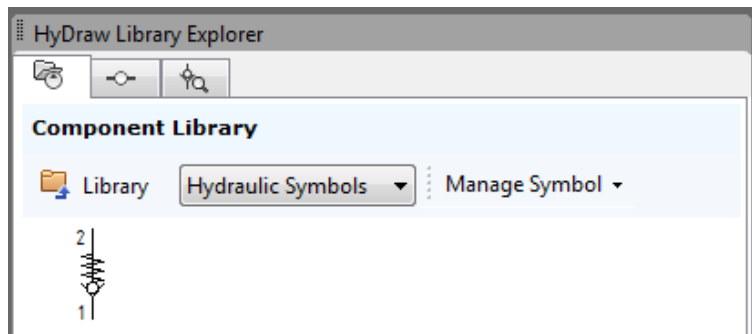
You need to revisit the folder to view the inserted symbol.



Manage Symbol > Add New Symbol



Add Symbol



The New Symbol is added to HyDraw Library



3. Edit Master Symbol

Modify the master symbol available in the HyDraw® Symbol Library.

In the HyDraw Library Explorer, browse to the required folder and select the symbol to edit.


1. Click **Manage Symbol**.
2. Select **Edit Symbol** from the drop down.

The symbol displays on the drawing space along with the Edit Master Symbol dialog box.

3. Edit the symbol.

1. Edit Port

1. Type the new name in the **Name** column and the optional name in the **Other Name** column.

2. To delete the port, click .

3. Select **Name/Other Name** in the Display option. .

4. Click **OK**.

The Name/Other name of the port displays with the symbol.

If both the names are selected, then dual port names are displayed.

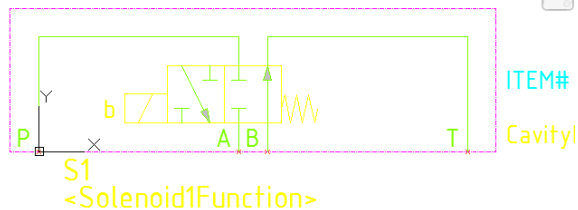
2. Insert Port

1. Type the new name in the **Name** column and the optional name in the **Other Name** column.

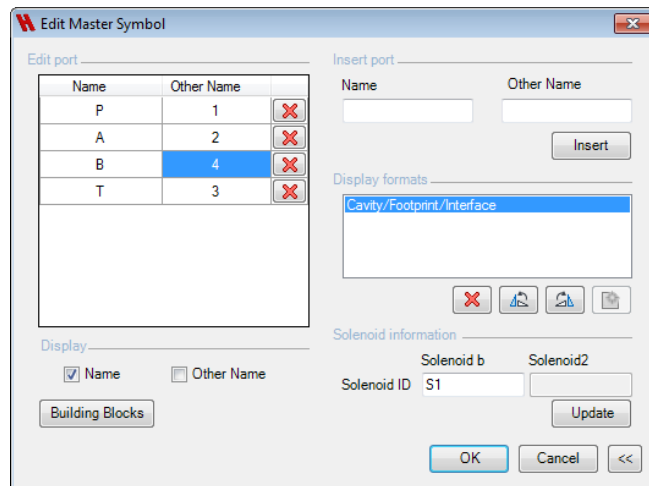
2. Click **Insert** and insert the port on the symbol.

3. Specify the port insertion point.





The Edit Master Symbol dialog box reappears after the port insertion.



Edit Master Symbol



The screenshot shows the 'Edit Master Symbol' dialog box. It has several sections: 'Edit port' with a table of ports, 'Insert port' with input fields, 'Display formats' with a list box, and 'Solenoid information' with fields for Solenoid ID and Solenoid b. The 'Building Blocks' button is visible at the bottom left.

Name	Other Name	
P	1	
A	2	
B	4	
T	3	

Insert port

Name: Other Name:

Insert

Display formats

Cavity/Footprint/Interface

Solenoid information





Solenoid b: Solenoid2:

Solenoid ID: S1 Update

OK Cancel <<

Edit Master Symbol

3. Display Formats

1. Click  to add the new display format.
2. Click  to rotate right.
3. Click  to rotate left.
4. To delete the earlier display format, click .

4. Solenoid Information

1. Enter the Solenoid ID.
2. Click **Update** to display the Solenoid ID on the drawing.
3. Click **OK**.

The modified symbol is updated in the library.

Note

- You need to revisit the folder to view the changes of the modified symbol.
- Click the Building Blocks to insert the basic building elements from the Building Blocks window.

1. Delete Symbol

Delete Symbol command enables you to delete the master symbol available in the HyDraw[®] Symbol Library.

Caution:

The symbol once deleted, is permanently removed from the library and cannot be brought back.

2. Add DWG Symbol

Add DWG Symbol enables you to add DWG symbol to the HyDraw Symbol Library.

Note:

1. The HyDraw Library Manager consists of both Visio and CAD symbols.
2. The Add DWG Symbol is enabled, only when Visio symbol exists in the HyDraw Symbol Library and CAD symbol does not exist.

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